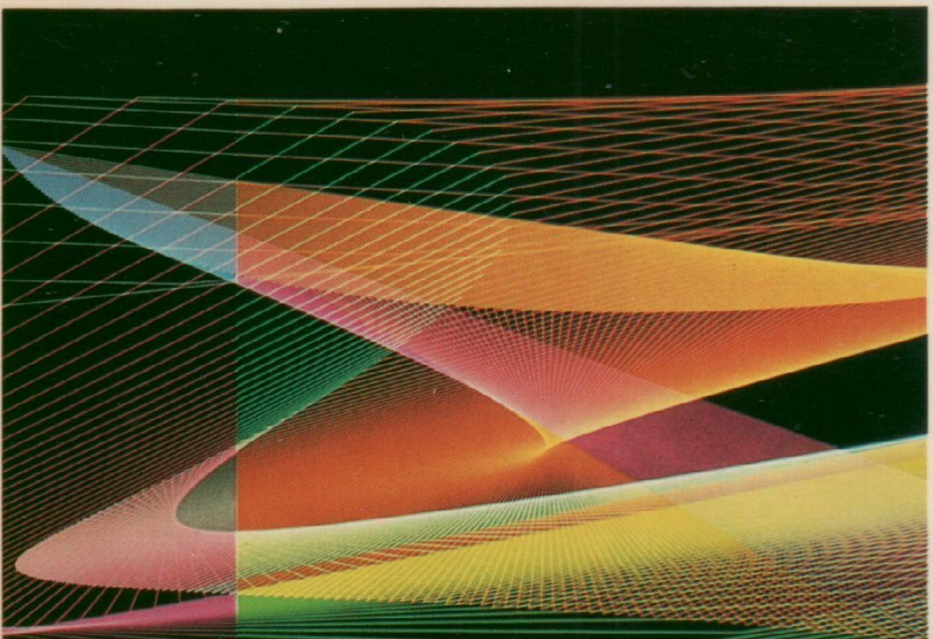
AN INTRODUCTION TO VU-CALC™ SPREADSHEETING FOR THE TIMEX/SINCLAIR 2000® AND THE SINCLAIR ZX SPECTRUM®

HARRY ANBARLIAN



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AN INTRODUCTION TO **VU-CALC™** **SPREADSHEETING** FOR THE **TIMEX/SINCLAIR 2000®** AND THE **SINCLAIR ZX SPECTRUM®**

McGRAW-HILL TITLES BY HARRY ANBARLIAN

An Introduction to SuperCalc™ Spreadsheeting on the Osborne™
An Introduction to VisiCalc® Matrixing for Apple® and IBM®
An Introduction to VisiCalc® Spreadsheeting for the TRS-80® Model II and Model 16
An Introduction to VisiCalc® Spreadsheeting for the TRS-80® Model III
An Introduction to Vu-Calc™ Spreadsheeting for the Timex/Sinclair 1000® and the Sinclair ZX-81®
An Introduction to Vu-Calc™ Spreadsheeting for the Timex/Sinclair 2000® and the Sinclair ZX Spectrum®
Spreadsheeting on the TRS-80® Color Computer

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HARRY ANBARLIAN

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THIS BOOK IS DEDICATED TO

MY VERY LOVELY AND

EXTRAORDINARILY TALENTED

WIFE, MARINA ...

WHO NOT ONLY CREATED THE

FORMAT FOR THIS BOOK,

BUT

TYPED IT AND PROVIDED THE

ENTHUSIASTIC LOVE AND SUPPORT

TO MAKE IT ALL POSSIBLE ...

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● PREFACE ●

- This book is designed to teach you how to create spreadsheets using Vu-Calc* software on your Timex/Sinclair 2000 or Sinclair ZX Spectrum microcomputer.

- This book is designed to help you "plug" into the Computer Age by providing you with hands-on experience in creating your own low cost electronic worksheet matrixes for home, business, school or government.

- This book is for those of you who know a great deal about what you want a microcomputer to do automatically for you but know very little about programming or microcomputers.

- This book is for those of you, whether at home or in business, school or government, who want to learn how to use a tool (spreadsheet matrixing) to solve real world problems quickly and easily.

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*NOTE: Vu-Calc software must be specifically made for the Timex/Sinclair 2000 or Sinclair ZX Spectrum.

PREFACE

Although this book is primarily for Timex/Sinclair 2000 and Sinclair ZX Spectrum users, creating and using the Vu-Calc matrixes illustrated in this book will give you experience in using all spreadsheets as well as some Financial Planning Packages.

There are many spreadsheet programs currently available for microcomputers, big computers and minicomputers, but there is little doubt that use of microcomputers has significantly increased because of them.

This book gives you the knowledge and ability to use an electronic worksheet to create matrixes (also known as templates and models) for your own needs and specifications.

Creating matrixes with the Vu-Calc software program is almost like having a phonograph record with an orchestra on it that you can direct to create your own music.

PREFACE

Those of you who feel a little intimidated by the microcomputer revolution soon learn how computers become useful, productive time saving devices in the comfort of your own home and at extremely low cost.

Through hands-on experience, this book gives you the ability to direct your home computer to productive use almost immediately. Without having to learn any complex programming languages, you learn to create Personal Home Cash Flow and Net Worth Budgets (matrixes) at your own pace and control.

After completing the step-by-step matrixes, which increase in complexity, you can create matrixes tailored to fit your own individual home, business, government or educational needs.

You certainly will gain a better understanding of the wide range of uses for spreadsheet matrixes, and some of you may even want to save the matrixes you create on a tape recorder and build a library of matrixes common to varying tasks for others to use.

PREFACE

All of the matrixes in this book are simply presented and the step-by-step process leaves little to your imagination. Further, we are very much aware that a book of this kind requires that the matrixes work and are defect free. To that end my wife, Marina, who has limited knowledge of computers or programming, tested each matrix and her acute observations ensured that this book was simple and free of any explanations or matrixes that a layperson would not understand.

We offer a variety of sample matrixes such as Home Cash Flow, Personal Net Worth and Electric Bill for home or business use and graphs for school or business presentations.

We hope this book will help you unleash your creative powers not only in the use of microcomputers but in the use of spreadsheets so that you can go on to develop matrixes for applications we have not dreamed of.

HARRY ANBARLIAN

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• INTRODUCTION •

• WHAT IS VU-CALC ELECTRONIC SPREADSHEET MATRIXING?

The dictionary defines matrix as "that which forms or determines".

An electronic spreadsheet such as Vu-Calc can be defined as a multipurpose, problem-solving software package that utilizes the microcomputer's powerful memory in performing calculations.

Combine the two definitions and Vu-Calc electronic spreadsheet matrixing is creating reusable, saveable electronic spreadsheet forms, which through software such as Vu-Calc utilizes the microcomputer's powerful memory in performing calculations designed for your own specific applications.

• INTRODUCTION •

• WHY THIS BOOK IS WRITTEN IN TWO SECTIONS

This book is written in two sections, Section I and II.

Section I is written to introduce you to Vu-Calc (electronic spreadsheet) matrixing.

Section II is written to provide you with the actual steps in creating matrixes by using the Vu-Calc software program on the Timex/Sinclair 2000 or Sinclair ZX Spectrum computer.

• INTRODUCTION •

• HOW TO USE THIS BOOK

The most important chapters in this book contain exercises that will give you hands-on experience in creating Vu-Calc electronic spreadsheet matrixes. The exercises are Simple, Moderately Complex and Complex.

Although some of the matrixes can be very useful to your own specific applications, they are designed to cover a wide spectrum of uses. You can see the countless ways matrixes can be used, limited only to your own creative imagination.

If you follow the simple steps in the hands-on exercises, you will not only create useful matrixes, but you will also learn step-by-step how each matrix is created so you can create original matrixes of your own.

• INTRODUCTION •

• HOW TO USE THE EXERCISES

Each exercise is designed to help you to gain the hands-on experience to create Vu-Calc matrixes that will solve specific problems through a systematic, step-by-step process.

Each exercise contains the following:

a. OBJECTIVE

The objective explains the purpose for creating the matrix. It simply states the problem to be solved.

As you read the objective of each exercise you may want to list other similar objectives that occur to you so that at the end of the exercise you may tailor the matrix to meet your own individual applications.

b. DOING IT BY HAND

The purpose of this part in each exercise is to simply state how you would solve the problem if you did not have a microcomputer.

Just keep in mind that the steps as described generally compute one item at a time, whereas the microcomputer will calculate all of the items in a fraction of the time - with no errors.

This part also contains all formulas that are required to solve the problems the matrixes are created to automatically calculate.

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK MATRIX

This part contains the actual steps you will type to create the matrixes.

Each exercise will be in the following format:

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION

Each item in the above format is explained below:

BOX LOCATION

Identifies where on the screen (electronic spreadsheet) the information will be typed in. BOX LOCATION is also known as the cursor or cell location.

• INTRODUCTION •

TYPE THE FOLLOWING

The typing steps are designed to be followed with no deviations. We have indicated use of the SPACE BAR for separations between words and the use of the SYMBOL SHIFT and CAPS SHIFT keys to activate commands on your key board.

In all cases follow the steps exactly as indicated until you become experienced enough to make matrix modifications to suit your own applications.

NOTE: The typing steps will include key board keys to be pressed in addition to letters and number keys to create the matrixes. It is important to note all keys to be pressed will be enclosed in brackets.

For example, keys such as ENTER, SYMBOL SHIFT, CAPS SHIFT, SPACE BAR will be shown as <ENTER>, <SYMBOL SHIFT>, <CAPS SHIFT> and <SPACE BAR>.

EXPLANATION

The explanations for each of the steps that you type will help you to understand those steps that are not in plain English. Unfortunately, there are some steps that will only become clear after you read the explanation.

Most, however, are explanations for setting your computer into specific action modes. These items as they relate to matrixing will be explained in more detail in the next chapter, but remember the EXPLANATION COLUMN in each exercise is also helpful to you in identifying and understanding the working formulas in each matrix.

As you become more experienced, the formula locations and steps to execute them will become more apparent.

d. ILLUSTRATION OF COMPLETED BLANK MATRIX

If the actual step-by-step instructions are followed exactly as listed, your blank matrix shown on the screen should look like the one in the book.

At that point in the exercise you can also identify any changes you may want to make to tailor the matrix to your own needs or you may be inspired to create some original matrixes for special applications.

e. EXAMPLE OF HOW TO USE THE BLANK MATRIX

Once the blank matrix is created, the information to use the matrix is provided in this section.

For example, if the matrix is created to compute your Electric Bill then the hypothetical hours you use the appliances and the rate you are charged are provided to input into your blank matrix.

We have provided you this information so that you can have the hands-on experience of inputting data into a blank matrix.

After you complete the full exercise and you see the results on the screen, you can certainly input your own data and you are encouraged to do so to gain more hands-on experience.

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK MATRIX

The hands-on steps to input the hypothetical data are presented the same way as the steps to create the blank matrix.

Simply follow the steps and you should have no trouble in inputting the data.

g. ILLUSTRATION OF COMPLETED MATRIX

The completed matrix with the data inserted is illustrated, and again the completed inputted matrix on your screen should match the illustration in the book.

At this point the final completed matrix can be saved or printed.

• INTRODUCTION •

• BEFORE YOU START

There are some basic equipment requirements before you start. You must have the following:

1. Timex/Sinclair 2000 or Sinclair ZX Spectrum computer.

2. Vu-Calc software program specifically made for the Timex/Sinclair 2000 or Sinclair ZX Spectrum which contains the electronic spreadsheet you will load into your computer.

3. A TV set or monitor with proper interface which will provide you with a picture on your screen of the matrixes you will create.

4. A tape recorder for saving the Vu-Calc matrixes you create.

   A printer, although optional, is most important for business and government applications and very nice to have for school or home use, especially when printed matrixes are used as reports or file records.

• BEFORE YOU READ THE NEXT CHAPTER

In this introductory chapter you learned how to use this book.

If you have been using Vu-Calc for a while and you have a basic knowledge of the Vu-Calc commands as well as your Timex/ Sinclair 2000 or Sinclair ZX Spectrum key board, you probably can go to the first exercise and begin creating matrixes.

However, if not, you are ready to take a look at your Vu-Calc electronic spreadsheet screen.

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• THE VU-CALC BLACKBOARD •

If you can visualize a large blackboard with hundreds of boxes on it, boxes that you can write on and manipulate, boxes that can contain complex formulas, numbers, lines or just plain words, you have a pretty good idea of what the Vu-Calc blackboard looks like and a pretty good idea of what this chapter is all about!

However, before you begin to create Vu-Calc matrixes you should have a general understanding of the electronic spreadsheet as it is used in matrixing and which we will call the Vu-Calc blackboard.

• THE VU-CALC BLACKBOARD •

• AFTER YOU LOAD UP

What you first see on your screen after you load up Vu-Calc on your Timex Sinclair 2000 or Sinclair ZX Spectrum are four column headings (01 to 04) and 18 rows of letters (A to R). It is important to note that what you see on your screen at any one time is only a small portion of the large Vu-Calc blackboard that you will write your Vu-Calc matrixes on.

You will not see more than four columns and eighteen rows on your screen at one time. By using the four ARROW KEYS (← ↑ ↓ →) you can, however, move (SCROLL) your blackboard across your screen in all four directions.

By SCROLLING you are able to see any part of the Vu-Calc blackboard at any time you want. Hold the CAPS SHIFT KEY down while pressing any of the ARROW KEYS on the top of your key board at this time to see the rest of your Vu-Calc blackboard.

Just remember that when you do the exercises, the matrixes illustrated in this book show the entire matrix and not just the portions that you will see on your screen at any one time.

• THE VU-CALC BLACKBOARD •

• BOXES ON THE VU-CALC BLACKBOARD

Although you may never use them all, the Vu-Calc blackboard provides you with 60 rows and 60 columns of blank spaces for you to fill in with words, numbers, labels, titles and formulas.

60x60
= 3600

Just imagine hundreds of intersections where columns and rows meet. Each of these intersections is where the action occurs in creating your Vu-Calc matrixes. These meeting places are known as BOXES in Vu-Calc. However, they are also referred to as cells or coordinates in other spreadsheet programs.

Furthermore, these BOXES are available for your input when the CURSOR is in one of them. So when the CURSOR is in a particular BOX LOCATION you can write in text or a title, word, number or formula.
Just like writing with chalk on a blackboard or pencil on a work pad!

• THE VU-CALC BLACKBOARD •

• THE BLACKBOARD

As we explained before,when you load and use the Vu-Calc electronic worksheet you only see a small portion of the entire worksheet. What you do not see are the hundreds of BOXES that are there for your use.

If you take a small part of the large Vu-Calc blackboard and identify the BOX LOCATIONS that first appear on your screen with column headings 01 (zero one) to 04 (zero four) and 18 rows lettered A to R,the blackboard will look like the following illustration.

• THE VU-CALC BLACKBOARD •

	01	02	03	04
A	A1	A2	A3	A4
B	B1	B2	B3	B4
C	C1	C2	C3	C4
D	D1	D2	D3	D4
E	E1	E2	E3	E4
F	F1	F2	F3	F4
G	G1	G2	G3	G4
H	H1	H2	H3	H4
I	I1	I2	I3	I4
J	J1	J2	J3	J4
K	K1	K2	K3	K4
L	L1	L2	L3	L4
M	M1	M2	M3	M4
N	N1	N2	N3	N4
P	P1	P2	P3	P4
Q	Q1	Q2	Q3	Q4
R	R1	R2	R3	R4

As you can see in the illustration each BOX is identified with a BOX LOCATION. But you will not see those BOXES or BOX LOCATIONS identified on your screen, although throughout this book each BOX you use will have to be identified with a similar set of letters and numbers.

Using a little imagination you can visualize the rest of the Vu-Calc blackboard with thousands of BOXES, all having their own identification numbers.

Just remember that whenever a row and column intersect, you have a BOX LOCATION. For example, the BOX where row E and column 03 (zero three) meet is identified as BOX E3. Note the row letter precedes the column number.

Now that you know what the Vu-Calc blackboard looks like, let us take a look at the BOXES.

• HOW THE BOXES WORK

Now stretch your imagination a little more. Not only are there hundreds of BOXES but each BOX has seven spaces in it. That is, each BOX is set to display seven letters or numbers depending on how you choose to use the BOXES - as Text Boxes, Formulas Boxes or Data Boxes.

You will find the top of your Vu-Calc screen displays the following:

Enter # for command
" for text directly
for data and formulae

You will create Formula Boxes by simply typing the formulas in boxes that will display numbers which result from the computer's calculation of the formulas.

By pressing the (Symbol Shift) Key and the " Key (on the P Key) you will create a Box that will accept text, labels, titles and even numbers. But more about that later.

● FORMULA BOXES AND TEXT BOXES

a. THE FORMULA BOXES

FORMULA BOXES do the calculating. They execute formulas. They add, subtract, multiply, divide and average.

Most of the Exercises have FORMULA BOXES included in the steps to create matrixes.

Most of the Simple Exercises are designed to help you create matrixes that automatically add, subtract, divide and multiply but are otherwise not too complex.

Matrix formulas for stock growth rates, compound interest and treasury bill investment yields are more complex and provided in the Stock Portfolio Matrix, IRA Matrix and Treasury Bill Investment Yield Matrix.

It is important to note that many of the blank matrixes you will create contain zeros or number ones in all BOX LOCATIONS where numbers might later be inserted. The matrixes will not operate if a FORMULA BOX refers to a BOX with nothing in it or a BOX containing characters rather than numbers.

Therefore, we have designed the Exercises to provide for zeros and number ones in all key BOXES in the blank matrixes so that they will be operational. The ones act as place holders or dummy variables.

b. THE TEXT BOXES

TEXT BOXES are used for descriptions, labels, words, titles and numbers.

All of the matrixes in this book include TEXT BOXES.

Although the TEXT BOXES are primarily for labels, titles and numbers, mathematical signs can also be used as labels.

For example, by pressing the (Symbol Shift) Key first with the (Quote) " Key, a date including numbers and mathematical signs such as 1/25/83 can be inserted in a TEXT BOX where the mathematical symbol for division (/) is used as a slash mark.

All of the Exercises in this book include inputting numbers into blank matrixes to illustrate how you can use the matrixes. Each Exercise has a section titled "Actual Steps For Inputting Data Into The Blank Matrix" which clearly demonstrates how the TEXT BOXES and FORMULA BOXES work.

In this chapter you learned how the BOXES work. Now let us look at the keys and commands and see how they direct the BOXES to do what we want them to do.

===

MOST USED VU-CALC KEYS AND COMMANDS IN MATRIXING

===

The best way to learn how to use the Vu-Calc matrixing keys and commands is to use them. The more you use them the better you will understand how to use them.

Our purpose in this section is to show you how the keys and commands can be used with specific examples in a variety of applications.

Our aim is to help you to create spreadsheet matrixes that can be tailored to your own individual needs.

As you work the Exercises in this book you will recognize that any matrix can be created in more than one way - in fact, in numerous ways.

Some of you no doubt will find faster and more efficient ways to create the matrixes shown in this book. Our aim, however, is to introduce you to Vu-Calc spreadsheet matrixing by having you utilize a wide range of keys, commands and methods, so that you will have more than one option when you go on and create your own matrixes.

This part of the book and some of the commands in the Step-by-Step Exercises are in Vu-Calc language and not simple English. Someday even these commands will be in simple English, but until then we will keep it as simple as we can.

• THE VU-CALC BLACKBOARD •

All of the commands described in this section are used in the Exercises,and each command is explained in the Step-by-Step instructions in the Exercises.

The Vu-Calc commands are similar to a craft person's tools: the more you use them, the more proficient you will become in creating useful matrixes.

An explanation of the more important keys and commands used in matrixing follows.

KEYBOARD

ARROW KEYS

KEY BOARD DESCRIPTION

KEY FUNCTION

ARROW KEYS can be found on the top row of your key board. The ARROWS can be seen on the upper portions of the (5 KEY), (6 KEY), (7 KEY) and (8 KEY). ARROW KEYS can only be used after and while the CAPS SHIFT KEY is pressed down.

ARROW KEYS are used to move the CURSOR to and from BOX LOCATIONS on the screen, and to SCROLL in four directions. The CURSOR will move in the direction the ARROW is pointing on the key board.

It is important to note that by holding the CAPS SHIFT key down together with any of the ARROW KEYS, the CURSOR will continue to move in the direction of the ARROW. Be sure to exert extra pressure on the ARROW KEY to keep the CURSOR moving.

Since the Exercises in this book require formulas to be placed in specific BOX LOCATIONS to operate properly, you must use the ARROW KEYS cautiously and be sure the CURSOR is always in the proper BOX LOCATION described in the Exercise steps before inputting any information.

• SYMBOL SHIFT

KEY	KEY BOARD DESCRIPTION
	SYMBOL SHIFT

KEY FUNCTION

The SYMBOL SHIFT KEY, for purposes of the exercises in this book, will be illustrated as follows:

< SYMBOL SHIFT >

This very important key is used to activate all of the commands that are used in Vu-Calc.

When the SYMBOL SHIFT KEY is held down and any of the other keys with symbols on them are then pressed, the character on the key will appear on the lower left part of your screen.

All of the commands can be activated when the SYMBOL SHIFT KEY is held down and # KEY is pressed.

In fact, all of the commands available for your use are displayed on the top of your screen when the SYMBOL SHIFT KEY and # KEY are pressed.

When the SYMBOL SHIFT KEY is used with the pound sign (#) and the G Key,the CURSOR can be quickly moved to any location on the Vu-Calc screen.

For example, you can move the CURSOR to BOX LOCATION M4 by typing the following steps:

<SYMBOL SHIFT> # G

<SYMBOL SHIFT> ,

M4 <ENTER>

Always remember that the SYMBOL SHIFT KEY must be pressed first and held down before a command key such as # is pressed.

• CAPS SHIFT

KEY	KEY BOARD DESCRIPTION
	CAPS SHIFT

KEY FUNCTION

The CAPS SHIFT KEY, for purposes of the exercises in this book, will be illustrated as follows:

<CAPS SHIFT>

The CAPS SHIFT KEY when used with the CAPS LOCK KEY will capitalize all the characters you type. The CAPS LOCK can be seen on the upper portion of your key board over the number 2 key.

You will know your computer is in the capitalize mode when you see a capital "C" flashing on the lower left portion of your screen. By holding the CAPS SHIFT KEY down and pressing the CAPS LOCK KEY on and off you will see the flashing CURSOR change from "C" to "L". When you see the flashing "L",the computer will display only small characters (lower case) as you type.

Another important feature of the CAPS LOCK KEY is to delete information before it is entered. When the CAPS LOCK KEY is used with the DELETE KEY, titles or formulas can be altered before entry. The DELETE KEY can be seen over the upper portion of the 0 Key.

● SPACE KEY

KEY BOARD DESCRIPTION

SPACE

KEY FUNCTION

The SPACE KEY, for purposes of the exercises in this book, will be illustrated as follows:

<SPACE BAR>

The SPACE BAR KEY is primarily used for spacing words and text in Vu-Calc matrixing.

The SPACE BAR used after pressing the <SYMBOL SHIFT> " KEYS can also be used for indenting text, words, labels, titles or paragraphs.

• ENTER KEY

KEY BOARD DESCRIPTION

ENTER

KEY FUNCTION

The ENTER KEY, for purposes of the exercises in this book, will be illustrated as follows:

< ENTER >

At the conclusion of an entry in a BOX, whether it be a complex formula or a simple title, the ENTER KEY is pressed to enter the information into the computer.

If the information is entered in a TEXT BOX you will see what you typed in the BOX.

If the information entered is a formula you will not see the results in the BOX until the C (Calculate) Key is pressed.

It is, however, important to note that although you will not see the formula in the BOX you entered, you will see it on the lower left hand section of your screen - outside the BOXES.

Once the information is entered you cannot change it without starting all over again or using the edit command. However, if you have not pressed the ENTER KEY yet you can edit the entry by pressing the CAPS SHIFT KEY with the DELETE KEY.

• COMMANDS •

• REPEAT COMMAND COMMAND: # R

The (R) REPEAT COMMAND is probably the most powerful and valuable tool used throughout all the exercises in this book.

This command is used to repeat (replicate or reproduce) the contents of a BOX, whether it be a TEXT BOX or a FORMULA BOX, in one or more BOXES on your Vu-Calc spreadsheet.

It is important to remember that the SYMBOL SHIFT KEY must first be held down when pressing the # KEY to activate all commands and before selecting a specific command such as (R) repeating.

To illustrate the use of this powerful command let us assume you want to list years 1983 to 1991 on your Vu-Calc spreadsheet.

By typing the following steps on your Vu-Calc screen you will create a list of years 1983 to 1991.

STEPS TO CREATE A LIST OF YEARS 1983 TO 1991 page 1 ...

TYPE THE FOLLOWING	EXPLANATION
1983	TYPE 1983
<ENTER>	PRESS THE ENTER KEY ENTER 1983 INTO THE COMPUTER
<CAPS SHIFT> ↓	HOLD CAPS SHIFT KEY DOWN AND PRESS DOWN ARROW KEY - THIS WILL MOVE THE CURSOR TO BOX LOCATION B1
A1	TYPE A1 BOX LOCATION
<SYMBOL SHIFT> + 1	HOLD SYMBOL SHIFT KEY DOWN AND PRESS THE + KEY TO ADD, THEN TYPE 1

STEPS TO CREATE A LIST OF YEARS 1983 TO 1991

continued page 2 ...

TYPE THE FOLLOWING	EXPLANATION
<ENTER>	PRESS THE ENTER KEY ENTER THE FORMULA INTO THE COMPUTER
<SYMBOL SHIFT> #	HOLD SYMBOL SHIFT KEY DOWN AND PRESS THE # KEY TO ACTIVATE THE COMMAND MODE
R	PRESS THE R KEY FOR THE REPEAT COMMAND
<SYMBOL SHIFT> ,	HOLD SYMBOL SHIFT KEY DOWN AND PRESS THE , KEY

STEPS TO CREATE A LIST OF YEARS 1983 TO 1991

continued page 3 ...

TYPE THE FOLLOWING	EXPLANATION
B1	TYPE B1 WHICH IS THE BOX LOCATION OF THE FORMULA TO BE REPEATED
<SYMBOL SHIFT> ,	HOLD SYMBOL SHIFT KEY DOWN AND PRESS THE , KEY
CI	TYPE C1 WHICH IS THE FIRST BOX LOCATION THE FORMULA IS TO BE REPEATED IN
<SYMBOL SHIFT> :	HOLD SYMBOL SHIFT KEY DOWN AND PRESS THE : KEY WHICH ALLOWS THE RANGE OF THE REPETITION

STEPS TO CREATE A LIST OF YEARS 1983 TO 1991

continued page 4 ...

TYPE THE FOLLOWING	EXPLANATION
I1	LAST BOX LOCATION THE FORMULA IS TO BE REPEATED IN
<ENTER>	PRESS THE ENTER KEY ENTER THE FORMULA INTO THE COMPUTER

At this point you should see a display of years from 1983 to 1991 on your screen.

Not only will you use this powerful tool in numerous applications throughout all the exercises in this book but you will also learn that when using the Repeating Command, formulas will automatically adjust (Relative) to the BOX LOCATIONS they are repeated in.

You will also learn that by using the $ before a variable in a formula, you can use the Repeating Command with no change in that variable by keeping it constant (Absolute).

You can find examples of using the Absolute option in the IRA Matrix and the Stock Portfolio Matrix Exercises.

• TRANSFER COMMAND   COMMAND: # T

COMMAND FUNCTION

The (T) TRANSFER COMMAND is used to transfer (copy) information from one row to another or from one column to another.

It is used exactly like the Repeat Command, by holding the SYMBOL SHIFT KEY down before pressing the # Key, followed by the T Key.

The TRANSFER COMMAND, besides transferring entire blocks of information quickly to other rows and columns on your spreadsheet, can also delete rows and columns of information quickly. You can blank out an entire row or column by simply transferring a blank row or column to a row or column with information on it.

Examples of using the TRANSFER COMMAND can be found in the steps to create exercises for Three-Dimensional Graph and Stock Portfolio Matrixes.

• CALCULATE COMMAND COMMAND: # C

COMMAND FUNCTION

The (C) CALCULATE COMMAND activates the action (Formula) BOXES in the matrixes.

It is important, however, to note that the CALCULATE COMMAND can take some time to compute a matrix. The amount of time it takes your computer to calculate a matrix depends upon the number of calculations and the complexity of the formulas in the matrix you create.

In most of the exercises the CALCULATE COMMAND is first used to make sure the matrix is operational before inputting actual data. It is always better to make sure your matrix is operational before using it.

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In most of the exercises the CALCULATE COMMAND is first used to make sure the matrix is operational before inputting actual data. It is always better to make sure your matrix is operational before using it.

ERRORS

If a matrix is not operational because of an error in a formula or because a FORMULA BOX refers to other BOXES which are blank, the matrix will not work. You will see an ERROR message on the bottom of your screen as follows:

```
C Nonsense in Basic, 5000 :1
```

This means something is wrong with your matrix and you have exited the Vu-Calc program spreadsheet.

Fortunately, the problem can usually be remedied easily and quickly.

This may happen frequently when you are first creating your own matrixes, but you can quickly get back to your Vu-Calc spreadsheet to correct the error by pressing the following keys:

1. PRESS: G 9000 <ENTER>

2. PRESS: <ENTER>

You will now notice your screen will display the BOX LOCATION of the error after step 1.

Step 2 will return you to the Vu-Calc spreadsheet so that you can correct the error.

● FORMAT LEFT

COMMAND

COMMAND: # FL

COMMAND FUNCTION

The (F) FORMAT (L) LEFT COMMAND is used to move titles or numbers to the right or left parts of each BOX.

The Vu-Calc format is designed to normally format TITLES and LABELS to the right side of each BOX. This frequently makes your matrixes look awkward.

Therefore, most of the matrix exercises provide for moving TITLES and LABELS to the left in the first two columns of each matrix.

The sequence for typing steps in formating column 1 titles to the left follows:

TYPE	EXPLANATION
<SYMBOL SHIFT> #	ACTIVATES COMMAND MODE
F	TYPE (F) FORMAT
<SYMBOL SHIFT> ,	TYPE COMMA
1	TYPE (1) ONE
<SYMBOL SHIFT> ,	TYPE COMMA
L	TYPE (L) LEFT
<ENTER>	ENTER INFORMATION

• FORMAT ALL DOLLARS AND CENTS

COMMAND: # F A $

COMMAND FUNCTION

The (F) FORMAT (A) ALL ($) DOLLARS AND CENTS COMMAND is used in many of the matrixes in this book.

In addition to setting the computer to display dollars and cents through out your spreadsheet, this mode is also used to display fractional percentages.

The sequence of typing steps to make all the BOXES on your spreadsheet display DOLLARS AND CENTS is as follows:

TYPE	EXPLANATION
<SYMBOL SHIFT> #	ACTIVATE COMMAND MODE
F	TYPE (F) FORMAT
<SYMBOL SHIFT> ,	TYPE COMMA
A	TYPE (A) ALL
<SYMBOL SHIFT> ,	TYPE COMMA
<SYMBOL SHIFT> $	SET DOLLARS AND CENTS MODE
<ENTER>	ENTER INFORMATION

In addition to setting your entire spreadsheet to display DOLLARS AND CENTS you can limit that configuration to a single column by substituting a column number for (A) ALL.

You can also determine the number of digits you want to display by formatting the computer to (I) INTEGER and (G) GENERAL instead of $.

For example, if you divide 10 by 3, using the appropriate commands your answers will vary considerably as follows:

COMMAND	SCREEN DISPLAY
# F A G	3.33333
# F A I	3
# F A $	3.33

• SUM FACILITY COMMAND: &

COMMAND FUNCTION

In order to add a row, column or block of numbers the & KEY is used in conjunction with the SYMBOL SHIFT KEY.

The sequence of typing steps to add a group of BOXES with numbers in them would be almost the same as using the other commands.

For example, with the CURSOR in BOX D1, you could add the numerical contents of BOXES A1, B1 and C1 by typing the following after placing zeros in BOXES A1, B1 and C1:

TYPE	EXPLANATION
<SYMBOL SHIFT> &	HOLD SYMBOL SHIFT KEY DOWN AND PRESS & KEY
A1	TYPE FIRST BOX LOCATION
<SYMBOL SHIFT> :	HOLD SYMBOL SHIFT KEY DOWN AND PRESS : KEY
C1	TYPE LAST BOX LOCATION
<ENTER>	ENTER FORMULA INTO COMPUTER

Remember you must have numbers in all the BOXES referred to for the formula to work.

• SAVE COMMAND COMMAND: # S

COMMAND FUNCTION

In order to be able to reuse the matrixes you create you must save the matrix by using the (S) SAVE COMMAND.

Some of the matrixes you create using the Exercises in this book certainly can be very beneficial to you in tracking your personal finances and budgets.

After you create the matrixes and test them to be sure they are working properly, you are ready to save them.

The SAVE COMMAND is used like the other commands, preceded by the SYMBOL SHIFT # sequence. However, after you press the S KEY and ENTER KEY your screen will ask for a file name. At this point you should type in the name of the file and then press the ENTER KEY, saving the matrix.

LOAD COMMAND

COMMAND: # L

COMMAND FUNCTION

After you save a matrix you should reload it to make sure that it was saved and that it is working properly.

Whenever you load a Vu-Calc matrix be sure Vu-Calc has first been loaded in the computer and the blank spreadsheet is on your screen.

• QUIT VU-CALC

COMMAND   COMMAND: # Q

COMMAND FUNCTION

The (Q) QUIT COMMAND is used to clear your screen.

It is important to remember that when your screen displays the three options, if you choose option 2,"CLEAR WORKSHEET", you will lose the spreadsheet you created unless you have saved it.

In addition to the above mentioned commands the Vu-Calc program has a (B) BLANK COMMAND, and (E) EDIT COMMAND.

Neither one of these commands is used in this book, but they are certainly commands well worth exploring.

The (E) EDIT COMMAND is particular useful when you are first starting since it gives you an opportunity to change a FORMULA which may be causing your matrix to be non-operational.

The (P) PRINTER COMMAND is also not included in any of the exercises because there are a number of different printers that can be used with Vu-Calc spreadsheets. If you use a printer it is important that you refer to the instructions for your own particular printer.

● READY FOR THE EXERCISES

You now are ready to do the Exercises in this book. Each Exercise is designed to give you a new hands-on experience in creating matrixes.

Just remember that each step you type has an explanation. In addition the formulas that you use are described in the Doing It By Hand part of the Exercises.

If you follow the steps exactly as shown, you should have no problems in matching the illustrations. It might be a good idea to keep referring to the illustration of the matrix that you are creating or using, as you go along, just to make sure you are on the right track.

SECTION II ... VU-CALC MATRIXING EXERCISES

- CHAPTER 2 66
  FIVE
  SIMPLE
  VU-CALC
  MATRIXES

- CHAPTER 3 178
  FIVE
  MODERATELY
  COMPLEX
  VU-CALC
  MATRIXES

- CHAPTER 4 293
  FIVE
  COMPLEX
  VU-CALC
  MATRIXES

==

• CHAPTER 2 ... FIVE SIMPLE VU-CALC MATRIXES

==

- PETTY CASH VOUCHER MATRIX 67
- PRICE EARNINGS RATIO MATRIX ... 85
- INVENTORY COST MATRIX 103
- PAYROLL MATRIX 121
- STUDENT'S BUDGET MATRIX 148

SIMPLE MATRIX EXERCISE

PETTY CASH VOUCHER MATRIX

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b. DOING IT BY HAND 69

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK PETTY CASH VOUCHER MATRIX 70

d. ILLUSTRATION OF COMPLETED BLANK PETTY CASH VOUCHER MATRIX 76

e. EXAMPLE OF HOW TO USE THE BLANK PETTY CASH VOUCHER MATRIX 78

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK PETTY CASH VOUCHER MATRIX 79

g. ILLUSTRATION OF COMPLETED PETTY CASH VOUCHER MATRIX 83

SIMPLE MATRIX EXERCISE

PETTY CASH VOUCHER MATRIX

a. OBJECTIVE

To create a simple Petty Cash Voucher matrix that will automatically calculate for five days, Monday to Friday, such items as transportation, parking, breakfast, lunch, dinner, tips and miscellaneous expenses.

The matrix should look as illustrated below:

PETTY CASH VOUCHER

EXPENSE	MON	TUE	WED	THU	FRI	TOTAL
TRANSPORTATION						
PARKING						
BREAKFAST						
LUNCH						
DINNER						
TIPS						
MISCELLANEOUS						
TOTAL						

b. DOING IT BY HAND

In most offices the preparation and calculation of simple Petty Cash Vouchers is not only a necessity but a time consuming task. Clerical and sometimes managerial or professional staff spend countless hours recording and adding expenses that frequently are checked and double checked before being submitted or approved.

Just looking at the simple voucher in the illustration above you can see that having to add six columns and eight rows can be time consuming - requiring over 14 calculations before arriving at a grand total.

Creating and using a simple matrix eliminates all of the time consuming calculations and gives the user error free final totals every time in a fraction of the time that it would take to compute by hand.

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK PETTY CASH VOUCHER MATRIX

The following steps will create a simple Petty Cash Voucher matrix that will automatically calculate for one week each day's cash expenditures, as well as giving you daily totals and a grand total for the entire week.

In order to create this blank Petty Cash Voucher matrix, type in the following information, being sure that your Caps Lock Key is on, so that your completed illustration will be in capital letters as shown in the book.

STEPS TO CREATE A BLANK ... page 1 ...

• PETTY CASH VOUCHER •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<CAPS SHIFT> <CAPS LOCK>	CAPITALIZE ALL LETTERS
A1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , A <SYMBOL SHIFT> , <SYMBOL SHIFT> $ <ENTER>	SETS ALL NUMBERS TO DOLLARS AND CENTS
A1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> ,1 <SYMBOL SHIFT> , L <ENTER>	SETS ALL LABELS IN COLUMN 1 TO LEFT
A1	<SYMBOL SHIFT> " EXPENSE <ENTER> <CAPS SHIFT> ->	INSERT EXPENSE
A2	<SYMBOL SHIFT> " MON <ENTER> <CAPS SHIFT> ->	INSERT MONDAY
A3	<SYMBOL SHIFT> " TUES <ENTER> <CAPS SHIFT> ->	INSERT TUESDAY

STEPS TO CREATE A BLANK ...

continued page 2 ...

• PETTY CASH VOUCHER •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A4	<SYMBOL SHIFT> " WED <ENTER> <CAPS SHIFT> ->	INSERT WEDNESDAY
A5	<SYMBOL SHIFT> " THURS <ENTER> <CAPS SHIFT> ->	INSERT THURSDAY
A6	<SYMBOL SHIFT> " FRI <ENTER> <CAPS SHIFT> ->	INSERT FRIDAY
A7	<SYMBOL SHIFT> " TOTAL <ENTER>	INSERT TOTAL
A7	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C1 <ENTER>	GOTO BOX C1
C1	<SYMBOL SHIFT> " TRANSP <ENTER> <CAPS SHIFT> ↓	INSERT TRANSPORTATION
D1	<SYMBOL SHIFT> " PARKING <ENTER> <CAPS SHIFT> ↓	INSERT PARKING
E1	<SYMBOL SHIFT> " BRKFAST <ENTER> <CAPS SHIFT> ↓	INSERT BREAKFAST

STEPS TO CREATE A BLANK ...

continued page 3 ...

• PETTY CASH VOUCHER •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
F1	<SYMBOL SHIFT> " LUNCH <ENTER> <CAPS SHIFT> ↓	INSERT LUNCH
G1	<SYMBOL SHIFT> " DINNER <ENTER> <CAPS SHIFT> ↓	INSERT DINNER
H1	<SYMBOL SHIFT> " TIPS <ENTER> <CAPS SHIFT> ↓	INSERT TIPS
I1	<SYMBOL SHIFT> " MISC <ENTER> <CAPS SHIFT> ↓	INSERT MISCELLANEOUS
J1	<SYMBOL SHIFT> " TOTAL <ENTER>	INSERT TOTAL
J1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C2 <ENTER>	GOTO BOX C2
C2	0 <ENTER>	INSERT NUMBER ZERO

STEPS TO CREATE A BLANK ...

continued page 4 ...

• PETTY CASH VOUCHER •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C2	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C2 <SYMBOL SHIFT> , C2 <SYMBOL SHIFT> : I6 <ENTER>	REPEAT ZEROS IN ALL INPUT BOXES
C2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C7 <ENTER>	GOTO BOX C7
C7	<SYMBOL SHIFT> & C2 <SYMBOL SHIFT> : C6 <ENTER>	SETS FORMULA ADDS ALL TRANSPORTATION COSTS
C7	<SYMBOL SHIFT> # R SYMBOL SHIFT> , C7 <SYMBOL SHIFT> , D7 <SYMBOL SHIFT> : I7 <ENTER>	REPEATS FORMULA ADDS ALL OTHER ITEMS ACROSS ROWS

STEPS TO CREATE A BLANK ...

continued page 5 ...

● PETTY CASH VOUCHER ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C7	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , J2 <ENTER>	GOTO BOX J2
J2	<SYMBOL SHIFT> & C2 <SYMBOL SHIFT> : J2 <ENTER>	SETS FORMULA ADDS MONDAYS EXPENSES
J2	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , J2 <SYMBOL SHIFT> , J3 <SYMBOL SHIFT> : J7 <ENTER>	REPEATS ALL FORMULAS ADDS ALL OTHER EXPENSES TUESDAY TO FRIDAY
J2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , A1 <ENTER>	GOTO BOX A1
A1	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

d. ILLUSTRATION OF COMPLETED BLANK PETTY CASH VOUCHER MATRIX

Your blank Petty Cash Voucher matrix should look like the following illustration.

```
                                                    •   PETTY CASH VOUCHER   •

                          •   PETTY CASH VOUCHER   •



            01            02        03        04        05        06        07
A       EXPENSE          MON      TUES       WED     THURS       FRI     TOTAL
B
C       TRANSP          0.00      0.00      0.00      0.00      0.00      0.00
D       PARKING         0.00      0.00      0.00      0.00      0.00      0.00
E       BRKFAST         0.00      0.00      0.00      0.00      0.00      0.00
F       LUNCH           0.00      0.00      0.00      0.00      0.00      0.00
G       DINNER          0.00      0.00      0.00      0.00      0.00      0.00
H       TIPS            0.00      0.00      0.00      0.00      0.00      0.00
I       MISC            0.00      0.00      0.00      0.00      0.00      0.00
J       TOTAL           0.00      0.00      0.00      0.00      0.00      0.00
```

e. EXAMPLE OF HOW TO USE THE BLANK PETTY CASH VOUCHER MATRIX

Let's assume on Monday you spend:

$ 10.00 on transportation
$ 20.00 on lunch
$ 60.00 on dinner
$ 3.00 on tips
$ 1.00 on miscellaneous expenses

Then on Tuesday you spend:

$ 7.50 on transportation
$ 4.25 on breakfast
$ 25.00 on lunch
$ 50.75 on dinner
$ 5.00 on tips
$ 2.25 on miscellaneous expenses

Inputting the above described expenses into the blank Petty Cash Voucher matrix will automatically do all the calculations.

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK PETTY CASH VOUCHER MATRIX

Type the following information into the blank Petty Cash Voucher matrix as follows.

STEPS FOR INPUTTING DATA INTO THE BLANK ... page 1 ...

● PETTY CASH VOUCHER ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C2 <ENTER>	GOTO BOX C2
C2	10 <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT TRANSPORTATION EXPENSE $10.00
F2	20 <ENTER> <CAPS SHIFT> ↓	INSERT LUNCH EXPENSE $20.00
G2	60 <ENTER> <CAPS SHIFT> ↓	INSERT DINNER EXPENSE $60.00
H2	3 <ENTER> <CAPS SHIFT> ↓	INSERT TIP EXPENSE $3.00
I2	1 <ENTER>	INSERT MISCELLANEOUS EXPENSE $1.00

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 2 ...

• PETTY CASH VOUCHER •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
I2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C3 <ENTER>	GOTO BOX C3 TUESDAY/ TRANSPORTATION)
C3	7 <SYMBOL SHIFT> . 50 <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT TRANSPORTATION EXPENSE $7.50
E3	4 <SYMBOL SHIFT> . 25 <ENTER> <CAPS SHIFT> ↓	INSERT BREAKFAST EXPENSE $4.25
F3	25 <ENTER> <CAPS SHIFT> ↓	INSERT LUNCH EXPENSE $25.00
G3	50 <SYMBOL SHIFT> . 75 <ENTER> <CAPS SHIFT> ↓	INSERT DINNER EXPENSE $50.75
H3	5 <ENTER> <CAPS SHIFT> ↓	INSERT TIP EXPENSE $5.00

STEPS FOR INPUTTING DATA INTO THE BLANK ...

continued page 3 ...

• PETTY CASH VOUCHER •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
I3	2 <SYMBOL SHIFT> . 25 <ENTER>	INSERT MISCELLANEOUS EXPENSES $2.25
I3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , A1 <ENTER>	GOTO BOX A1
A1	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

g. ILLUSTRATION OF COMPLETED PETTY CASH VOUCHER MATRIX

The following illustration is what your completed Petty Cash Voucher matrix should look like.

```
                                                    •  PETTY CASH VOUCHER  •

                         •  PETTY CASH VOUCHER  •

              01         02         03         04         05         06         07

 A         EXPENSE       MON        TUES        WED       THURS        FRI      TOTAL
 B
 C         TRANSP      10.00        7.50       0.00       0.00       0.00      17.50
 D         PARKING      0.00        0.00       0.00       0.00       0.00       0.00
 E         BRKFAST      0.00        4.25       0.00       0.00       0.00       4.25
 F         LUNCH       20.00       25.00       0.00       0.00       0.00      45.00
 G         DINNER      60.00       50.75       0.00       0.00       0.00     110.75
 H         TIPS         3.00        5.00       0.00       0.00       0.00       8.00
 I         MISC         1.00        2.25       0.00       0.00       0.00       3.25
 J         TOTAL       94.00       94.75       0.00       0.00       0.00     188.75
```

SIMPLE MATRIX EXERCISE

PRICE EARNINGS RATIO MATRIX

a. OBJECTIVE 86

b. DOING IT BY HAND 87

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK PRICE EARNINGS RATIO MATRIX 89

d. ILLUSTRATION OF COMPLETED BLANK PRICE EARNINGS RATIO MATRIX 94

e. EXAMPLE OF HOW TO USE THE BLANK PRICE EARNINGS RATIO MATRIX 96

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK PRICE EARNINGS RATIO MATRIX 97

g. ILLUSTRATION OF COMPLETED PRICE EARNINGS RATIO MATRIX 101

• SIMPLE •
• MATRIX •
• EXERCISE •

• PRICE EARNINGS RATIO MATRIX •

a. OBJECTIVE

To create a simple Price Earnings Ratio matrix for five stocks so that by inputting the prices and earnings of any five stocks, the price earnings ratio will automatically be calculated.

The matrix should look as illustrated below:

• PRICE EARNINGS RATIOS •

STOCK	PRICE	EARN	P/E RATIO
1 ______			
2 ______			
3 ______			
4 ______			
5 ______			

b. DOING IT BY HAND

The ratio of the price of a stock in relationship to its per share earnings done by hand would require the following steps:

Example:

$$\frac{\text{CURRENT STOCK PRICE}}{\text{LAST YEARLY EARNINGS PER SHARE}} = \text{PRICE EARNINGS RATIO}$$

If the stock is selling for \$10.00 and the last year's earnings were \$1.00 per share, the price earnings ratio would be equal to the price of the stock, \$10.00, divided by the earnings, \$1.00 per share, or 10.

Example:

$$\frac{\$\ 10.00}{\$\ 1.00} = 10$$

If you were to do this individually on five stocks, you can see it could be time consuming.

However, if you developed a Price Earnings Ratio matrix, you could list five stocks or more, and as new earnings were entered each year or quarter, the Price Earnings Ratio would automatically be calculated.

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK PRICE EARNINGS RATIO MATRIX

The following steps will create a simple Price Earnings Ratio matrix for five stocks that will automatically compute price earnings ratios.

In order to create this matrix, type in the following information, being sure that your Caps Lock Key is on, so that your completed illustration will be in capital letters as shown in the book.

STEPS TO CREATE A BLANK ... page 1 ...

• PRICE EARNINGS RATIO •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<CAPS SHIFT> <CAPS LOCK>	CAPITALIZE ALL LETTERS
A1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , A <SYMBOL SHIFT> , <SYMBOL SHIFT> $ <ENTER>	SETS ALL BOXES FOR DOLLARS AND CENTS
A1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 1 <SYMBOL SHIFT> , L <ENTER>	SETS 1ST COLUMN LABELS TO THE LEFT
A1	<SYMBOL SHIFT> " STOCK <ENTER> <CAPS SHIFT> ->	INSERT STOCK
A2	<SYMBOL SHIFT> " PRICE <ENTER> <CAPS SHIFT> ->	INSERT PRICE
A3	<SYMBOL SHIFT> " EARN <ENTER> <CAPS SHIFT> ->	INSERT EARNINGS

STEPS TO CREATE A BLANK ...

continued page 2 ...

• PRICE EARNINGS RATIO •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A4	<SYMBOL SHIFT> " P <SYMBOL SHIFT> / E <ENTER>	INSERT PRICE/ EARNINGS RATIO
A4	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C1 <ENTER>	GOTO BOX C1
C1	<SYMBOL SHIFT> " <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <ENTER>	DRAWS LINE IN BOX C1
C1	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C1 <SYMBOL SHIFT> , D1 <SYMBOL SHIFT> : G1 <ENTER>	DRAWS LINES IN BOXES D1 TO G1

STEPS TO CREATE A BLANK ...

continued page 3 ...

• PRICE EARNINGS RATIO •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C2 <ENTER>	GOTO BOX C2
C2	1 <ENTER>	INSERT NUMBER 1 AS DUMMY VARIABLE
C2	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C2 <SYMBOL SHIFT> , C2 <SYMBOL SHIFT> : G3 <ENTER> <CAPS SHIFT> -> <CAPS SHIFT> ->	REPEAT 1 IN COLUMNS 2 AND COLUMN 3
C4	C2 <SYMBOL SHIFT> / C3 <ENTER>	SET PRICE EARNINGS RATIO FORMULA

STEPS TO CREATE A BLANK ...

continued page 4 ...

• PRICE EARNINGS RATIO •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C4	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C4 <SYMBOL SHIFT> , D4 <SYMBOL SHIFT> : G4 <ENTER>	REPEAT FORMULA IN BOXES D4-G4
C4	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , A1 <ENTER>	GOTO BOX A1
A1	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

d. ILLUSTRATION OF COMPLETED BLANK PRICE EARNINGS RATIO MATRIX

Your blank Price Earnings Ratio matrix should look like the following illustration.

```
       ●   PRICE EARNINGS RATIO   ●



              01          02          03          04

A      STOCK            PRICE        EARN         P/E
B
C      .......           1.00        1.00        1.00
D      .......           1.00        1.00        1.00
E      .......           1.00        1.00        1.00
F      .......           1.00        1.00        1.00
G      .......           1.00        1.00        1.00
```

e. EXAMPLE OF HOW TO USE THE BLANK PRICE EARNINGS RATIO MATRIX

Let's assume you own five stocks for which you want to automatically calculate Price Earnings Ratios, and their current price and earnings are as follows:

STOCK	PRICE	EARNINGS
AT&T	50	4.63
IBM	57	5.00
EXXON	20	.75
FORD	40	6.00
RCA	45	4.00

Inputting the above shown information into the blank Price Earnings Ratio matrix will automatically calculate the Price Earnings Ratios for all the stocks.

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK PRICE EARNINGS RATIO MATRIX

Type the following information into the blank Price Earnings Ratio matrix as follows.

STEPS FOR INPUTTING DATA INTO THE BLANK ... page 1 ...

● PRICE EARNINGS RATIO ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C1 <ENTER>	GOTO BOX C1
C1	<SYMBOL SHIFT> " ATT <ENTER> <CAPS SHIFT> ->	INSERT FIRST STOCK'S NAME
C2	50 <ENTER> <CAPS SHIFT> ->	INSERT FIRST STOCK'S PRICE
C3	4 <SYMBOL SHIFT> . 63 <ENTER>	INSERT FIRST STOCK'S EARNINGS
C3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , D1 <ENTER>	GOTO BOX D1
D1	<SYMBOL SHIFT> " IBM <ENTER> <CAPS SHIFT> ->	INSERT SECOND STOCK'S NAME
D2	57 <ENTER> <CAPS SHIFT> ->	INSERT SECOND STOCK'S PRICE
D3	5 <ENTER>	INSERT SECOND STOCK'S EARNINGS

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 2 ...

• PRICE EARNINGS RATIO •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
D3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , E1 <ENTER>	GOTO BOX E1
E1	<SYMBOL SHIFT> " EXXON <ENTER> <CAPS SHIFT> ->	INSERT THIRD STOCK'S NAME
E2	20 <ENTER> <CAPS SHIFT> ->	INSERT THIRD STOCK'S PRICE
E3	<SYMBOL SHIFT> .75 <ENTER>	INSERT THIRD STOCK'S EARNINGS
E3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , F1 <ENTER>	GOTO BOX F1
F1	<SYMBOL SHIFT> " FORD <ENTER> <CAPS SHIFT> ->	INSERT FOURTH STOCK'S NAME
F2	40 <ENTER> <CAPS SHIFT> ->	INSERT FOURTH STOCK'S PRICE

STEPS FOR INPUTTING DATA INTO THE BLANK ...

continued page 3 ...

• PRICE EARNINGS RATIO •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
F3	6 <ENTER>	INSERT FOURTH STOCK'S EARNINGS
F3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , G1 <ENTER>	GOTO BOX G1
G1	<SYMBOL SHIFT> " RCA <ENTER> <CAPS SHIFT> ->	INSERT FIFTH STOCK'S NAME
G2	45 <ENTER> <CAPS SHIFT> ->	INSERT FIFTH STOCK'S PRICE
G3	4 <ENTER>	INSERT FIFTH STOCK'S EARNINGS
G3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , A1 <ENTER>	GOTO BOX A1
A1	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

STEPS FOR INPUTTING DATA INTO THE BLANK ...

continued page 2 ...

● PRICE EARNINGS RATIO ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
D3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , E1 <ENTER>	GOTO BOX E1
E1	<SYMBOL SHIFT> " EXXON <ENTER> <CAPS SHIFT> ->	INSERT THIRD STOCK'S NAME
E2	20 <ENTER> <CAPS SHIFT> ->	INSERT THIRD STOCK'S PRICE
E3	<SYMBOL SHIFT> .75 <ENTER>	INSERT THIRD STOCK'S EARNINGS
E3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , F1 <ENTER>	GOTO BOX F1
F1	<SYMBOL SHIFT> " FORD <ENTER> <CAPS SHIFT> ->	INSERT FOURTH STOCK'S NAME
F2	40 <ENTER> <CAPS SHIFT> ->	INSERT FOURTH STOCK'S PRICE

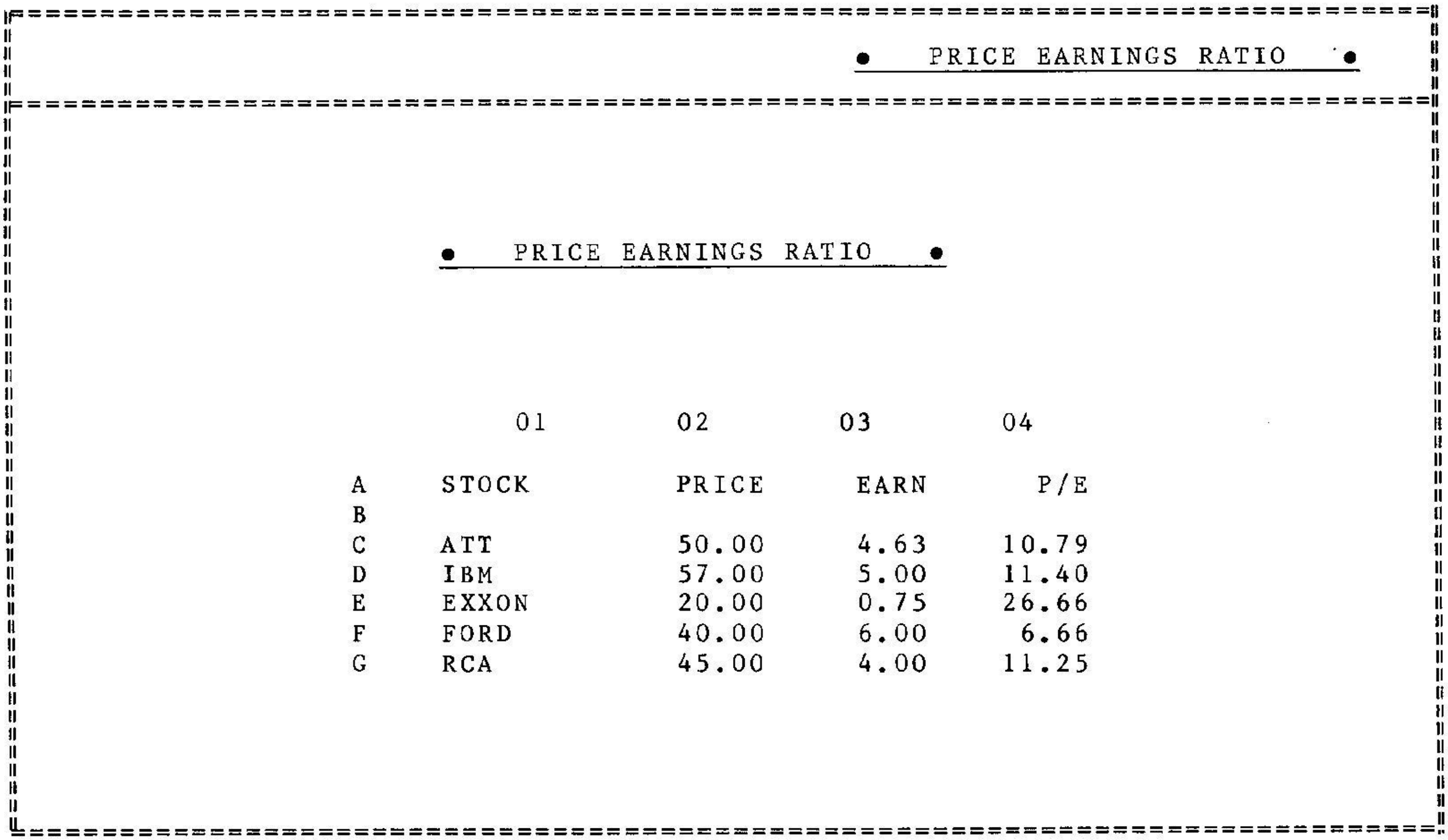
STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 3 ...

• PRICE EARNINGS RATIO •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
F3	6 <ENTER>	INSERT FOURTH STOCK'S EARNINGS
F3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , G1 <ENTER>	GOTO BOX G1
G1	<SYMBOL SHIFT> " RCA <ENTER> <CAPS SHIFT> ->	INSERT FIFTH STOCK'S NAME
G2	45 <ENTER> <CAPS SHIFT> ->	INSERT FIFTH STOCK'S PRICE
G3	4 <ENTER>	INSERT FIFTH STOCK'S EARNINGS
G3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , A1 <ENTER>	GOTO BOX A1
A1	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

g. ILLUSTRATION OF COMPLETED PRICE EARNINGS RATIO MATRIX

The following illustration is what your completed Price Earnings Ratio matrix should look like.



```
                                             •    PRICE EARNINGS RATIO   •

                 •   PRICE EARNINGS RATIO   •



                      01         02         03         04

            A    STOCK          PRICE       EARN        P/E
            B
            C    ATT            50.00       4.63      10.79
            D    IBM            57.00       5.00      11.40
            E    EXXON          20.00       0.75      26.66
            F    FORD           40.00       6.00       6.66
            G    RCA            45.00       4.00      11.25
```

SIMPLE MATRIX EXERCISE

INVENTORY COST MATRIX

a. OBJECTIVE 104

b. DOING IT BY HAND 105

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK INVENTORY COST MATRIX 106

d. ILLUSTRATION OF COMPLETED BLANK INVENTORY COST MATRIX 112

e. EXAMPLE OF HOW TO USE THE BLANK INVENTORY COST MATRIX 114

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK INVENTORY COST MATRIX 115

g. ILLUSTRATION OF COMPLETED INVENTORY COST MATRIX 119

SIMPLE MATRIX EXERCISE

INVENTORY COST MATRIX

a. OBJECTIVE

To create an Inventory Cost matrix that will automatically calculate total cost for each of ten items in an inventory when given the quantity and unit price of each item.

In addition to listing each item, the matrix will provide a running total cost of all the items.

b. DOING IT BY HAND

Keeping a record of inventory and computing additions and deletions to the list can require a good deal of work when done by hand.

In order to keep a current record each new purchase or sale requires a change in the previous record. By creating a simple matrix all the hand entries and calculations can be eliminated.

By simply inserting the quantity of the items and the unit price per item, total cost will automatically be calculated.

In an active business the quantity of items would change daily. Rather than recalculate the dollar amount of each item by hand, the Inventory Cost matrix will provide automatic recalculations as well as a current total cost of inventory.

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK INVENTORY COST MATRIX

The following steps will create an Inventory Cost matrix that will automatically calculate total cost and the amount of dollars you have invested in a particular inventory item, given the quantity and unit price of the item.

In order to create an Inventory Cost matrix, type in the following information, being sure that your Caps Lock Key is on, so that your completed illustration will be in capital letters as shown in the book.

STEPS TO CREATE A BLANK ... page 1 ...

INVENTORY COST

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<CAPS SHIFT> <CAPS LOCK>	CAPITALIZE ALL LETTERS
A1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 1 <SYMBOL SHIFT> , L <ENTER> <CAPS SHIFT> ->	FORMAT LABELS TO THE LEFT IN COLUMN 1
A2	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 2 <SYMBOL SHIFT> , L <ENTER> <CAPS SHIFT> ->	FORMAT LABELS TO THE LEFT IN COLUMN 2
A3	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 3 <SYMBOL SHIFT> , L <ENTER> <CAPS SHIFT> <- <CAPS SHIFT> <-	FORMAT LABELS TO THE LEFT IN COLUMN 3

STEPS TO CREATE A BLANK ... continued page 2 ...

INVENTORY COST

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<SYMBOL SHIFT> " DATE <ENTER> <CAPS SHIFT> ->	INSERT DATE
A2	<SYMBOL SHIFT> " DESCRP <ENTER> <CAPS SHIFT> ->	INSERT DESCRIPTION
A3	<SYMBOL SHIFT> " ITEM <SPACE BAR> <SYMBOL SHIFT> # <ENTER> <CAPS SHIFT> ->	INSERT ITEM NUMBER
A4	<SYMBOL SHIFT> " QTY <ENTER> <CAPS SHIFT> ->	INSERT QUANTITY
A5	<SYMBOL SHIFT> " UNIT <ENTER> <CAPS SHIFT> ↓	INSERT UNIT
B5	<SYMBOL SHIFT> " PRICE <ENTER> <CAPS SHIFT> -> <CAPS SHIFT> ↑	INSERT PRICE

STEPS TO CREATE A BLANK ...

continued page 3 ...

• INVENTORY COST •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A6	<SYMBOL SHIFT> " AMT <SPACE BAR> <SYMBOL SHIFT> $ <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	AMOUNT IN DOLLARS
D6	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 6 <SYMBOL SHIFT> , <SYMBOL SHIFT> $ <ENTER> <CAPS SHIFT> <-	FORMAT DOLLARS AND CENTS IN COLUMN 6
D5	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 5 <SYMBOL SHIFT> , <SYMBOL SHIFT> $ <ENTER> <CAPS SHIFT> <-	FORMAT DOLLARS AND CENTS IN COLUMN 5
D4	0 <ENTER>	INSERT NUMBER ZERO

STEPS TO CREATE A BLANK ...

continued page 4 ...

• INVENTORY COST •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
D4	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , D4 <SYMBOL SHIFT> , D4 <SYMBOL SHIFT> : M5 <ENTER> <CAPS SHIFT> -> <CAPS SHIFT> ->	REPEAT ZERO IN ALL INPUT BOXES
D6	D4 <SYMBOL SHIFT> * D5 <ENTER>	FORMULA MULTIPLY QUANTITY AND UNIT PRICE BOX D4 MULTIPLIED BY BOX D5
D6	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , D6 <SYMBOL SHIFT> , E6 <SYMBOL SHIFT> : M6 <ENTER>	REPEAT FORMULA AS ABOVE IN LINES E6 TO M6
D6	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , D1 <ENTER>	GOTO BOX D1

STEPS TO CREATE A BLANK ...

continued page 5 ...

• INVENTORY COST •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
D1	<SYMBOL SHIFT> " <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <ENTER>	DRAW LINE IN BOX D1
D1	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , D1 <SYMBOL SHIFT> , E1 <SYMBOL SHIFT> : M1 <ENTER>	REPEAT LINES IN BOXES E1 TO BOX M1
D1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , N6 <ENTER>	GOTO BOX N6
N6	<SYMBOL SHIFT> & D6 <SYMBOL SHIFT> : M6 <ENTER>	FORMULA TO ADD BOX D6 TO BOX M6
N6	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , D1 <ENTER>	GOTO BOX D1
D1	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

d. ILLUSTRATION OF COMPLETED BLANK INVENTORY COST MATRIX

Your blank Inventory Cost matrix should look like the following illustration.

```
                                                    •   INVENTORY COST   •

                  •   INVENTORY COST   •

          01          02          03          04          05          06

   A    DATE       DESCRP     ITEM #                 QTY       UNIT       AMT $
   B                                                          PRICE
   C
   D  .......                                         0          0        0.00
   E  .......                                         0          0        0.00
   F  .......                                         0          0        0.00
   G  .......                                         0          0        0.00
   H  .......                                         0          0        0.00
   I  .......                                         0          0        0.00
   J  .......                                         0          0        0.00
   K  .......                                         0          0        0.00
   L  .......                                         0          0        0.00
   M  .......                                         0          0        0.00
   N                                                  0          0        0.00
```

e. EXAMPLE OF HOW TO USE THE BLANK INVENTORY COST MATRIX

The following chart gives the dates, descriptions, quantities and unit prices of inventory items that will be used as data to illustrate the use of the blank Inventory Cost matrix.

● INVENTORY COST ●

DATE	DESCRIPTION	NUMBER	QUANTITY	PRICE
4/14/83	Lamps	S12345	100	$1.20
4/25/83	Switches	S45678	560	$ .35
5/05/83	Bulbs	D100034	475	$1.15

Inputting the above given data into the blank matrix will provide you with a printable record of the inventory.

In addition, the matrix will provide you with the total amount of each item, as well as the grand total amount of the inventory.

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK INVENTORY COST MATRIX

Type the following information into the blank Inventory Cost matrix as follows.

STEPS FOR INPUTTING DATA INTO THE BLANK ... page 1 ...

● INVENTORY COST ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
D1	<SYMBOL SHIFT> " 4 <SYMBOL SHIFT> / 14 <SYMBOL SHIFT> / 83 <ENTER> <CAPS SHIFT> ->	INSERT DATE 4/14/83
D2	<SYMBOL SHIFT> " LAMPS <ENTER> <CAPS SHIFT> ->	INSERT DESCRIPTION LAMPS
D3	<SYMBOL SHIFT> " S12345 <ENTER> <CAPS SHIFT> ->	INSERT INVENTORY NUMBER S12345
D4	100 <ENTER> <CAPS SHIFT> ->	INSERT QUANTITY 100
D5	1 <SYMBOL SHIFT> . 20 <ENTER>	INSERT COST PER ITEM $1.20
D5	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , E1 <ENTER>	GOTO BOX E1

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 2 ...

• INVENTORY COST •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
E1	<SYMBOL SHIFT> " 4 <SYMBOL SHIFT> / 25 <SYMBOL SHIFT> / 83 <ENTER> <CAPS SHIFT> ->	INSERT DATE 4/25/83
E2	<SYMBOL SHIFT> " SWITCH <ENTER> <CAPS SHIFT> ->	INSERT DESCRIPTION SWITCHES
E3	<SYMBOL SHIFT> " S45678 <ENTER> <CAPS SHIFT> ->	INSERT INVENTORY NUMBER S45678
E4	560 <ENTER> <CAPS SHIFT> ->	INSERT QUANTITY 560
E5	<SYMBOL SHIFT> . 35 <ENTER>	INSERT COST PER ITEM $.35
E6	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , F1 <ENTER>	GOTO BOX F1

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 3 ...

• INVENTORY COST •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
F1	<SYMBOL SHIFT> " 5 <SYMBOL SHIFT> / 5 <SYMBOL SHIFT> / 83 <ENTER> <CAPS SHIFT> ->	INSERT DATE 5/5/83
F2	<SYMBOL SHIFT> " BULBS <ENTER> <CAPS SHIFT> ->	INSERT DESCRIPTION BULBS
F3	<SYMBOL SHIFT> " D100034 <ENTER> <CAPS SHIFT> ->	INSERT INVENTORY NUMBER D100034
F4	475 <ENTER> <CAPS SHIFT> ->	INSERT QUANTITY 475
F5	1 <SYMBOL SHIFT> . 15 <ENTER> <CAPS SHIFT> ->	INSERT COST PER ITEM $1.15
F6	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

g. ILLUSTRATION OF COMPLETED INVENTORY COST MATRIX

This is what your completed Inventory Cost matrix should look like after you input the data provided above.

```
                     ●   INVENTORY COST   ●



         01        02        03         04        05       06


A    DATE      DESCRP    ITEM #           QTY      UNIT    AMT $
B                                                 PRICE
C
D    4/14/83   LAMPS     S12345           100      1.20   120.00
E    4/25/83   SWITCH    S45678           560       .35   196.00
F    5/5/83    BULBS     D100034          475      1.15   546.25
G    .......                                0         0     0.00
H    .......                                0         0     0.00
I    .......                                0         0     0.00
J    .......                                0         0     0.00
K    .......                                0         0     0.00
L    .......                                0         0     0.00
M    .......                                0         0     0.00
N                                                         862.25
```

● SIMPLE ●
● MATRIX ●
● EXERCISE ●

● PAYROLL MATRIX ●

a. OBJECTIVE 122

b. DOING IT BY HAND 124

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK PAYROLL MATRIX 126

d. ILLUSTRATION OF COMPLETED BLANK PAYROLL MATRIX 134

d. EXAMPLE OF HOW TO USE THE BLANK PAYROLL MATRIX 136

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK PAYROLL MATRIX 138

g. ILLUSTRATION OF COMPLETED PAYROLL MATRIX 146

• SIMPLE •

• MATRIX •

• EXERCISE •

• PAYROLL MATRIX •

a. OBJECTIVE

To create a Payroll matrix for ten employees with automatic calculations for net pay and gross pay (including regular and overtime rates) and with taxes and other deductions withheld.

The matrix will include the following column headings.

• PAYROLL •

EMPLOYEE	....	Employee's Name
TOT HRS	....	Total hours worked (weekly or bi-weekly)
RATE	....	Hourly rate of pay (regular time)
OT HOURS	....	Total overtime hours worked
OT RATE	....	Total overtime rate (time and a half)
GRS SAL		Gross salary, before taxes and deductions
TAXES	....	Federal, State and Local income taxes
DEDUCT	....	Deducations, health insurance, etc.
NET SAL	....	Net salary

b. DOING IT BY HAND

In order to compute net pay for each employee manually, the following calculations would have to be made.

1. First, gross pay would be calculated for each employee as follows:

(TOTAL REG HRS x REG RATE PER HR)

GROSS PAY = PLUS (+)

(TOT OT HRS x OT RATE PER HR)

2. Second, net pay would be calculated for each employee as follows:

(GROSS PAY)

NET PAY = MINUS (-)

(WITHHOLDING TAXES + OTHER DEDUCTIONS)

---

*NOTE: OT RATE = 1.5 x regular rate

3. Finally,

PAYROLL = (SUM OF NET PAY FOR ALL EMPLOYEES)

As you can see from the above illustrated steps, even a small payroll of ten employees takes many calculations before a total payroll can be compiled.

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK PAYROLL MATRIX

The following steps will create a Payroll matrix for ten employees that will automatically compute net salary and gross salary, as well as compensation for overtime.

In order to create this blank Payroll matrix, type in the following information, being sure that your Caps Lock Key is on, so that your completed illustration will be in capital letters as shown in the book.

STEPS TO CREATE A BLANK ... page 1 ...

• PAYROLL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<CAPS SHIFT> <CAPS LOCK>	CAPITIALIZE ALL LETTERS
A1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , A <SYMBOL SHIFT> , $ <ENTER>	SETS ALL BOXES TO DOLLARS AND CENTS
A1	<SYMBOL SHIFT> " EMPLOYE <ENTER> <CAPS SHIFT> ->	INSERT EMPLOYEE
A2	<SYMBOL SHIFT> " TOT <SPACE BAR> HR <ENTER> <CAPS SHIFT> ->	INSERT TOTAL HOURS
A3	<SYMBOL SHIFT> " RATE <ENTER> <CAPS SHIFT> ->	INSERT RATE
A4	<SYMBOL SHIFT> " OT <SPACE BAR> HR <ENTER> <CAPS SHIFT> ->	INSERT OVERTIME HOURS

STEPS TO CREATE A BLANK ...

continued page 2 ...

• PAYROLL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A5	<SYMBOL SHIFT> " OT <SPACE BAR> RTE <ENTER> <CAPS SHIFT> ->	INSERT OVERTIME RATE
A6	<SYMBOL SHIFT> " GR <SPACE BAR> SAL <ENTER> <CAPS SHIFT> ->	INSERT GROSS SALARY
A7	<SYMBOL SHIFT> " TAXES <ENTER> <CAPS SHIFT> ->	INSERT TAXES
A8	<SYMBOL SHIFT> " DEDUCT <ENTER> <CAPS SHIFT> ->	INSERT DEDUCTIONS
A9	<SYMBOL SHIFT> " NT <SPACE BAR> SAL <ENTER>	INSERT NET SALARY
A9	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C1 <ENTER>	GOTO BOX C1

STEPS TO CREATE A BLANK ... continued page 3 ...

PAYROLL

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C1	<SYMBOL SHIFT> " <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> - <ENTER>	DRAW LINE
C1	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C1 <SYMBOL SHIFT> , D1 <SYMBOL SHIFT> : L1 <ENTER> <CAPS SHIFT> ->	REPEAT LINES IN ROWS D TO L
C2	0 <ENTER>	INSERT THE NUMBER ZERO

STEPS TO CREATE A BLANK ...

continued page 4 ...

• PAYROLL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C2	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C2 <SYMBOL SHIFT> , C2 <SYMBOL SHIFT> : L4 <ENTER>	REPEAT ZEROS IN COLUMNS 2, 3 AND 4
C2	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C2 <SYMBOL SHIFT> , C7 <SYMBOL SHIFT> : L8 <ENTER>	REPEAT ZEROS IN COLUMNS 7 AND 8
C2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C5 <ENTER>	GOTO BOX C5
C5	1 <SYMBOL SHIFT> .5 <SYMBOL SHIFT> * C3 <ENTER>	INPUT FORMULA FOR TIME AND A HALF OVERTIME

STEPS TO CREATE A BLANK ... continued page 5 ...

PAYROLL

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C5	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C5 <SYMBOL SHIFT> , D5 <SYMBOL SHIFT> : L5 <ENTER> <CAPS SHIFT> ->	REPEAT FORMULA FOR TIME AND A HALF OVERTIME IN DOWN COLUMN 5
C6	<SYMBOL SHIFT> (C2 <SYMBOL SHIFT> * C3 <SYMBOL SHIFT>) <SYMBOL SHIFT> + <SYMBOL SHIFT> (C4 <SYMBOL SHIFT> * C5 <SYMBOL SHIFT>) <ENTER>	ADDS TOTAL HOURS MULTIPLIED BY RATE TO OVERTIME HOURS MULTIPLIED BY THE OVERTIME RATE
C6	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C6 <SYMBOL SHIFT> , D6 <SYMBOL SHIFT> : L6 <ENTER>	REPEAT GROSS SALARY FORMULA DOWN COLUMN 6

STEPS TO CREATE A BLANK ...

continued page 6 ...

• PAYROLL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C6	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C9 <ENTER>	GOTO BOX C9
C9	C6 <SYMBOL SHIFT> - <SYMBOL SHIFT> (C7 <SYMBOL SHIFT> + C8 <SYMBOL SHIFT>) <ENTER>	SUBTRACTS TAXES AND OTHER DEDUCTIONS FROM GROSS SALARY
C9	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C9 <SYMBOL SHIFT> , D9 <SYMBOL SHIFT> : L9 <ENTER>	REPEATS FORMULA FOR SUBTRACTING TAXES AND OTHER DEDUCTIONS FROM GROSS SALARY DOWN COLUMN 9
C9	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , M1 <ENTER>	GOTO BOX M1

STEPS TO CREATE A BLANK ...

continued page 7 ...

• PAYROLL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
M1	<SYMBOL SHIFT> " TOTAL <ENTER>	INSERT TOTAL
M1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , M8 <ENTER>	GOTO BOX M8
M8	<SYMBOL SHIFT> " PAYROLL <ENTER> <CAPS SHIFT> ->	INSERT PAYROLL
M9	<SYMBOL SHIFT> & C9 <SYMBOL SHIFT> : L9 <ENTER>	ADDS NET SALARIES IN COLUMN 9
M9	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C1 <ENTER>	GOTO BOX C1
C1	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

d. ILLUSTRATION OF COMPLETED BLANK PAYROLL MATRIX

Your blank Payroll matrix should look like the following illustration.

```
                                                            •  PAYROLL  •

                   •  PAYROLL  •

        01      02      03      04      05      06      07      08      09

A   EMPLOYE TOT HR   RATE   OT HR   OT RT GR SAL   TAXES DEDUCT NT SAL
B
C   --------   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
D   --------   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
E   --------   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
F   --------   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
G   --------   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
H   --------   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
I   --------   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
J   --------   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
K   --------   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
L   --------   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
M   TOTAL                                                  PAYROLL    0.00
```

e. EXAMPLE OF HOW TO USE THE BLANK PAYROLL MATRIX

Let's assume you have ten employees whose rates of pay, hours worked and deductions are listed in the chart following.

Using the blank Payroll matrix will automatically calculate gross pay, net pay and total payroll.

● PAYROLL ●

● PAYROLL ●

	EMPLOYEE	TOT HRS	RATE	OT HRS	OT RATE	TAXES	DEDUCT
1.	JONES, A.	40.00	6.50	2.00	9.75	83.85	18.50
2.	ADAMS, S.	40.00	6.50		9.75	78.00	10.75
3.	SMITH, L.	40.00	6.50	3.00	9.75	86.78	5.00
4.	HUNT, M.	40.00	6.50		9.75	78.00	6.50
5.	LORA, K.	40.00	6.50		9.75	78.00	6.50
6.	KENT, J.	40.00	6.50		9.75	78.00	6.50
7.	MASI, M.	40.00	5.50		8.25	66.00	6.50
8.	ANBAR, M.	40.00	5.50		8.25	66.00	6.50
9.	JOHNS, P.	32.00	5.50		8.25	52.80	6.50
10.	DIX. Y.	40.00	5.50		8.25	66.00	6.50

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK PAYROLL MATRIX

Type the following information into the blank Payroll matrix as follows.

```
                                                     • PAYROLL •

                     • PAYROLL •
                  TOT             OT         OT
     EMPLOYEE     HRS     RATE    HRS       RATE    TAXES    DEDUCT
  1.  JONES, A.   40.00   6.50    2.00      9.75    83.85    18.50

  2.  ADAMS, S.   40.00   6.50              9.75    78.00    10.75

  3.  SMITH, L.   40.00   6.50    3.00      9.75    86.78     5.00

  4.  HUNT, M.    40.00   6.50              9.75    78.00     6.50

  5.  LORA, K.    40.00   6.50              9.75    78.00     6.50

  6.  KENT, J.    40.00   6.50              9.75    78.00     6.50

  7.  MASI, M.    40.00   5.50              8.25    66.00     6.50

  8.  ANBAR, M.   40.00   5.50              8.25    66.00     6.50

  9.  JOHNS, P.   32.00   5.50              8.25    52.80     6.50

 10.  DIX. Y.     40.00   5.50              8.25    66.00     6.50
```

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK PAYROLL MATRIX

Type the following information into the blank Payroll matrix as follows.

STEPS FOR INPUTTING DATA INTO THE BLANK ... page 1 ...

• PAYROLL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C1	<SYMBOL SHIFT> " JONES <SYMBOL SHIFT> , A <ENTER> <CAPS SHIFT> ↓	INSERT FIRST EMPLOYEE NAME
D1	<SYMBOL SHIFT> " ADAMS <SYMBOL SHIFT> , S <ENTER> <CAPS SHIFT> ↓	INSERT SECOND EMPLOYEE NAME
E1	<SYMBOL SHIFT> " SMITH <SYMBOL SHIFT> , L <ENTER> <CAPS SHIFT> ↓	INSERT THIRD EMPLOYEE NAME
F1	<SYMBOL SHIFT> " HUNT <SYMBOL SHIFT> , M <ENTER> <CAPS SHIFT> ↓	INSERT FOURTH EMPLOYEE NAME
G1	<SYMBOL SHIFT> " LORA <SYMBOL SHIFT> , K <ENTER> <CAPS SHIFT> ↓	INSERT FIFTH EMPLOYEE NAME
H1	<SYMBOL SHIFT> " KENT <SYMBOL SHIFT> , J <ENTER> <CAPS SHIFT> ↓	INSERT SIXTH EMPLOYEE NAME

STEPS FOR INPUTTING DATA INTO THE BLANK ...

continued page 2 ...

• PAYROLL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
I1	<SYMBOL SHIFT> " MASI <SYMBOL SHIFT> , M <ENTER> <CAPS SHIFT> ↓	INSERT SEVENTH EMPLOYEE NAME
J1	<SYMBOL SHIFT> " ANBAR <SYMBOL SHIFT> , M <ENTER> <CAPS SHIFT> ↓	INSERT EIGHTH EMPLOYEE NAME
K1	<SYMBOL SHIFT> " JOHNS <SYMBOL SHIFT> , P <ENTER> <CAPS SHIFT> ↓	INSERT NINTH EMPLOYEE NAME
L1	<SYMBOL SHIFT> " DIX <SYMBOL SHIFT> , Y <ENTER>	INSERT TENTH EMPLOYEE NAME
L1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C2 <ENTER>	GOTO BOX C2 (TOTAL HOURS)
C2	40 <ENTER>	INSERT FIRST EMPLOYEE WEEKLY HOURS (40)

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 3 ...

• PAYROLL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C2	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C2 <SYMBOL SHIFT> , D2 <SYMBOL SHIFT> : J2 <ENTER>	REPEAT (40 HOURS) FOR NEXT SEVEN EMPLOYEES
C2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , K2 <ENTER>	GOTO BOX K2
K2	32 <ENTER> <CAPS SHIFT> ↓	INSERT (32 HOURS) FOR NINTH EMPLOYEE
L2	40 <ENTER>	INSERT (40 HOURS) FOR TENTH EMPLOYEE
L2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C3 <ENTER>	GOTO BOX C3 (HOURLY RATE)
C3	6 <SYMBOL SHIFT> . 50 <ENTER>	INSERT RATE (6.50) FOR FIRST EMPLOYEE

STEPS FOR INPUTTING DATA INTO THE BLANK ...

continued page 4 ...

• PAYROLL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C3 <SYMBOL SHIFT> , D3 <SYMBOL SHIFT> : H3 <ENTER>	REPEAT RATE (6.50) FOR NEXT FIVE EMPLOYEES
C3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , I3 <ENTER>	GOTO BOX I3
I3	5 <SYMBOL SHIFT> . 50 <ENTER>	INSERT RATE (5.50) FOR SEVENTH EMPLOYEE
I3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , I3 <SYMBOL SHIFT> , J3 <SYMBOL SHIFT> : L3 <ENTER>	REPEAT RATE (5.50) FOR NEXT THREE EMPLOYEES
I3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C4 <ENTER>	GOTO BOX C4 (OVERTIME RATE)

STEPS FOR INPUTTING DATA INTO THE BLANK ...   continued page 5 ...

● PAYROLL ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C4	2 <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT OT HRS (2) FOR FIRST EMPLOYEE
E4	3 <ENTER>	INSERT OT HRS (3) FOR THIRD EMPLOYEE
E4	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C7 <ENTER>	GOTO BOX C7 (WITHHOLDING TAXES)
C7	83 <SYMBOL SHIFT> . 85 <ENTER> <CAPS SHIFT> ↓	INSERT TAXES WITHELD EACH EMPLOYEE
D7	78 <ENTER> <CAPS SHIFT> ↓	INSERT TAXES WITHELD EACH EMPLOYEE
E7	86 <SYMBOL SHIFT> . 78 <ENTER> <CAPS SHIFT> ↓	INSERT TAXES WITHELD EACH EMPLOYEE
F7	78 <ENTER> <CAPS SHIFT> ↓	INSERT TAXES WITHELD EACH EMPLOYEE

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 6 ...

• PAYROLL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
G7	78 <ENTER> <CAPS SHIFT> ↓	INSERT TAXES WITHELD EACH EMPLOYEE
H7	78 <ENTER> <CAPS SHIFT> ↓	INSERT TAXES WITHELD EACH EMPLOYEE
I7	66 <ENTER> <CAPS SHIFT> ↓	INSERT TAXES WITHELD EACH EMPLOYEE
J7	66 <ENTER> <CAPS SHIFT> ↓	INSERT TAXES WITHELD EACH EMPLOYEE
K7	52 <SYMBOL SHIFT> . 80 <ENTER> <CAPS SHIFT> ↓	INSERT TAXES WITHELD EACH EMPLOYEE
L7	66 <ENTER>	INSERT TAXES WITHELD EACH EMPLOYEE
L7	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C8 <ENTER>	GOTO BOX C8 (PAYROLL DEDUCTIONS)

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 7 ...

• PAYROLL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C8	18 <SYMBOL SHIFT> . 50 <ENTER> <CAPS SHIFT> ↓	INSERT DEDUCTIONS FOR EACH EMPLOYEE
D8	10 <SYMBOL SHIFT> . 75 <ENTER> <CAPS SHIFT> ↓	INSERT DEDUCTIONS FOR EACH EMPLOYEE
E8	5 <ENTER> <CAPS SHIFT> ↓	INSERT DEDUCTIONS FOR EACH EMPLOYEE
F8	6 <SYMBOL SHIFT> . 50 <ENTER>	INSERT DEDUCTIONS FOR EACH EMPLOYEE
F8	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , F8 <SYMBOL SHIFT> , G8 <SYMBOL SHIFT> : L8 <ENTER>	REPEAT DEDUCTIONS NEXT SIX EMPLOYEES
F8	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , A1 <ENTER>	GOTO BOX A1
A1	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

g. ILLUSTRATION OF COMPLETED PAYROLL MATRIX

This is what your completed Payroll matrix should look like.

```
                                                                  ●   PAYROLL    ●

                              ●   PAYROLL    ●

               01      02      03      04      05      06      07      08      09


A       EMPLOYE TOT HR     RATE   OT HR   OT RT GR SAL    TAXES DEDUCT NT SAL
B
C       JONES,A  40.00     6.50    2.00    9.75 279.50    83.85  18.50 177.15
D       ADAMS,S  40.00     6.50    0.00    9.75 260.00    78.00  10.75 171.25
E       SMITH,L  40.00     6.50    3.00    9.75 289.25    86.78   5.00 197.47
F        HUNT,M  40.00     6.50    0.00    9.75 260.00    78.00   6.50 175.50
G        LORA,K  40.00     6.50    0.00    9.75 260.00    78.00   6.50 175.50
H        KENT,J  40.00     6.50    0.00    9.75 260.00    78.00   6.50 175.50
I        MASI,M  40.00     5.50    0.00    8.25 220.00    66.00   6.50 147.50
J       ANBAR,M  40.00     5.50    0.00    8.25 220.00    66.00   6.50 147.50
K       JOHNS,P  32.00     5.50    0.00    8.25 176.00    52.80   6.50 116.70
L         DIX,Y  40.00     5.50    0.00    8.25 220.00    66.00   6.50 147.50
M       TOTAL                                                 PAYROLL1631.57
```

SIMPLE MATRIX EXERCISE

STUDENT'S BUDGET MATRIX

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g. ILLUSTRATION OF COMPLETED STUDENT'S BUDGET MATRIX 175

SIMPLE
MATRIX
EXERCISE

STUDENT'S BUDGET MATRIX

a. OBJECTIVE

To create a Student's Budget matrix that will subtract total expenses from total income for a four-month school term, and provide net cash amounts for each month.

In addition, the matrix will provide totals for four income items and seven expense items with grand totals for income, expense and net cash.

b. DOING IT BY HAND

Computing a Student's Budget by hand first requires an itemization of all expenses and income.

An itemization of such a budget might very well look like the one that follows.

• STUDENT'S BUDGET •

ITEM	SEPT	OCT	NOV	DEC
INCOME				
WORK				
AWARDS				
ALLOWANCE				
OTHER				
EXPENSES				
TUITION				
BOOKS				
HOME				
CLOTHING				
FOOD				
TRANSPORTATION				
OTHER				
INCOME				
EXPENSES				
NET CASH				

Using the budget as described above would require the following steps:

1. Adding all the expense items and all the income items for each month of the school term.
2. Calculating net cash by subtracting accumulated expenses from accumulated income.
3. Adding each item of income or expense for the four month school term.

All of the above described steps can easily be reduced to a matrix that will automatically calculate net cash as well as each income and expense item.

To create a Student's Budget matrix, follow the steps listed below.

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK STUDENT'S BUDGET MATRIX

The following steps will create a Student's Budget matrix that will automatically compute income and expenses, and provide a net cash balance.

In order to create this Student's Budget matrix, type the following information, being sure that your Caps Lock Key is on, so that your completed illustration will be in capital letters as shown in the book.

STEPS TO CREATE A BLANK ... page 1 ...

• STUDENT'S BUDGET •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<CAPS SHIFT> <CAPS LOCK>	CAPITALIZE ALL LETTERS
A1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , A <SYMBOL SHIFT> , <SYMBOL SHIFT> $ <ENTER>	FORMAT DOLLARS AND CENTS
A1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 1 <SYMBOL SHIFT> , L <ENTER>	FORMAT COLUMN 1 LABELS TO THE LEFT
A1	<SYMBOL SHIFT> " TERM <SYMBOL SHIFT> : <ENTER>	INSERT TERM:
A1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , A6 <ENTER>	GOTO BOX A6

STEPS TO CREATE A BLANK ... continued page 2 ...

STUDENT'S BUDGET

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A6	<SYMBOL SHIFT> " YEAR <SYMBOL SHIFT> : <ENTER>	INSERT YEAR:
A6	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , D1 <ENTER>	GOTO BOX D1
D1	<SYMBOL SHIFT> " INCOME <ENTER> <CAPS SHIFT> -> <CAPS SHIFT> ->	INSERT INCOME
D3	<SYMBOL SHIFT> " SEPT <ENTER> <CAPS SHIFT> ->	INSERT SEPTEMBER
D4	<SYMBOL SHIFT> " OCT <ENTER> <CAPS SHIFT> ->	INSERT OCTOBER

STEPS TO CREATE A BLANK ...

continued page 3 ...

● STUDENT'S BUDGET ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
D5	<SYMBOL SHIFT> " NOV <ENTER> <CAPS SHIFT> ->	INSERT NOVEMBER
D6	<SYMBOL SHIFT> " DEC <ENTER> <CAPS SHIFT> ->	INSERT DECEMBER
D7	<SYMBOL SHIFT> " TOTAL <ENTER>	INSERT TOTAL
D7	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , F1 <ENTER>	GOTO BOX F1
F1	<SYMBOL SHIFT> " WORK <ENTER> <CAPS SHIFT> ↓	INSERT WORK
G1	<SYMBOL SHIFT> " AWARDS <ENTER> <CAPS SHIFT> ↓	INSERT AWARDS

STEPS TO CREATE A BLANK ...

continued page 4 ...

• STUDENT'S BUDGET •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
H1	<SYMBOL SHIFT> " ALLOWANCE <ENTER> <CAPS SHIFT> ↓	INSERT ALLOWANCE
I1	<SYMBOL SHIFT> " OTHER <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT OTHER
K1	<SYMBOL SHIFT> " EXPENSES <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT EXPENSES
M1	<SYMBOL SHIFT> " TUITION <ENTER> <CAPS SHIFT> ↓	INSERT TUITION
N1	<SYMBOL SHIFT> " BOOKS <ENTER> <CAPS SHIFT> ↓	INSERT BOOKS

STEPS TO CREATE A BLANK ...

continued page 5 ...

• STUDENT'S BUDGET •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
O1	<SYMBOL SHIFT> " HOME <ENTER> <CAPS SHIFT> ↓	INSERT HOME
P1	<SYMBOL SHIFT> " CLOTHING <ENTER> <CAPS SHIFT> ↓	INSERT CLOTHING
Q1	<SYMBOL SHIFT> " FOOD <ENTER> <CAPS SHIFT> ↓	INSERT FOOD
R1	<SYMBOL SHIFT> " TRANSPTORTATION <ENTER> <CAPS SHIFT> ↓	INSERT TRANSPORTATION
S1	<SYMBOL SHIFT> " OTHER <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT OTHER

STEPS TO CREATE A BLANK ...

continued page 6 ...

• STUDENT'S BUDGET •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
U1	<SYMBOL SHIFT> " TOTALS <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT TOTALS
W1	<SYMBOL SHIFT> " INCOME <ENTER> <CAPS SHIFT> ↓	INSERT INCOME
X1	<SYMBOL SHIFT> " EXPENSES <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT EXPENSES
Z1	<SYMBOL SHIFT> " NET <SPACE BAR> CASH <ENTER>	INSERT NET CASH
Z1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , F3 <ENTER>	GOTO BOX F3

STEPS TO CREATE A BLANK ...

continued page 7 ...

● STUDENT'S BUDGET ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
F3	0 <ENTER>	INSERT A ZERO
F3	<SYMBOL SHIFT> # R	REPEAT ZEROES
	<SYMBOL SHIFT> , F3	IN ROWS F TO I
	<SYMBOL SHIFT> , F3	
	<SYMBOL SHIFT> : I7	
	<ENTER>	
F3	<SYMBOL SHIFT> # R	REPEAT ZEROES
	<SYMBOL SHIFT> , F3	IN ROWS M TO S
	<SYMBOL SHIFT> , M3	
	<SYMBOL SHIFT> : S7	
	<ENTER>	
F3	<SYMBOL SHIFT> # G	GOTO BOX W3
	<SYMBOL SHIFT> , W3	
	<ENTER>	
W3	<SYMBOL SHIFT> & F3	FORMULA ADD UP
	<SYMBOL SHIFT> : I3	INCOME FOR
	<ENTER>	SEPTEMBER

STEPS TO CREATE A BLANK ...

continued page 8 ...

● STUDENT'S BUDGET ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
W3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , W3 <SYMBOL SHIFT> , W4 <SYMBOL SHIFT> : W7 <ENTER> <CAPS SHIFT> ↓	REPEAT FORMULA TO ADD INCOME FOR OCTOBER, NOVEMBER AND DECEMBER
X3	<SYMBOL SHIFT> & M3 <SYMBOL SHIFT> : S3 <ENTER>	FORMULA ADD UP EXPENSES FOR SEPTEMBER
X3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , X3 <SYMBOL SHIFT> , X4 <SYMBOL SHIFT> : X7 <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	REPEAT FORMULA TO ADD INCOME FOR OCTOBER, NOVEMBER AND DECEMBER
Z3	W3 <SYMBOL SHIFT> - X3 <ENTER>	FORMULA SUBTRACT EXPENSES FROM INCOME FOR SEPTEMBER

STEPS TO CREATE A BLANK ...

continued page 9 ...

• STUDENT'S BUDGET •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
Z3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , Z3 <SYMBOL SHIFT> , Z4 <SYMBOL SHIFT> : Z7 <ENTER>	REPEAT FORMULA TO SUBTRACT EXPENSES FROM INCOME FOR OCTOBER, NOVEMBER AND DECEMBER
Z3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , F7 <ENTER>	GOTO BOX F7
F7	<SYMBOL SHIFT> & F3 <SYMBOL SHIFT> : F6 <ENTER>	FORMULA ADD UP ALL WORK INCOME
F7	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , F7 <SYMBOL SHIFT> , G7 <SYMBOL SHIFT> : I7 <ENTER>	REPEAT FORMULA TO ADD UP EACH OTHER INCOME ITEM

STEPS TO CREATE A BLANK ...

continued page 10 ...

• STUDENT'S BUDGET •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
F7	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , F7 <SYMBOL SHIFT> , M7 <SYMBOL SHIFT> : S7 <ENTER>	REPEAT FORMULA TO ADD UP EACH OTHER EXPENSE ITEM
F7	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , A2 <ENTER>	GOTO BOX A2
A2	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

d. ILLUSTRATION OF COMPLETED BLANK STUDENT'S BUDGET MATRIX

Your blank Student's Budget matrix should look like the following illustration.

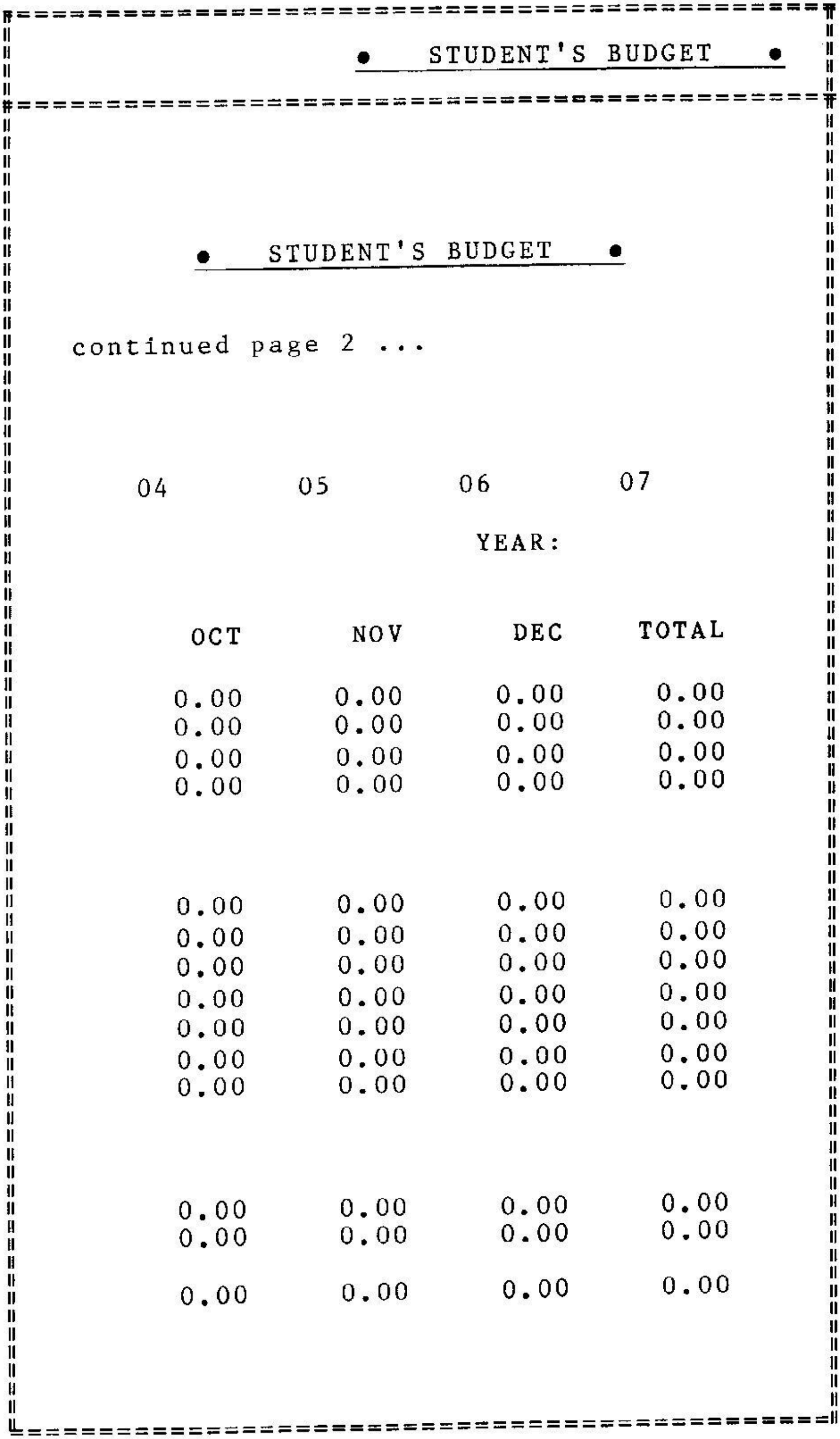
```
        •   STUDENT'S BUDGET   •

page 1 ...



                 01          02          03

      A    TERM:
      B
      C
      D    INCOME                            SEPT
      E
      F    WORK                              0.00
      G    AWARDS                            0.00
      H    ALLOWANCE                         0.00
      I    OTHER                             0.00
      J
      K    EXPENSES
      L
      M    TUITION                           0.00
      N    BOOKS                             0.00
      O    HOME                              0.00
      P    CLOTHING                          0.00
      Q    FOOD                              0.00
      R    TRANSPORTATION                    0.00
      S    OTHER                             0.00
      T
      U    TOTALS
      V
      W    INCOME                            0.00
      X    EXPENSES                          0.00
      Y
      Z    NET CASH                          0.00
```



```
                         •  STUDENT'S BUDGET  •

              •  STUDENT'S BUDGET  •

   continued page 2 ...

      04          05          06          07

                              YEAR:

        OCT         NOV         DEC        TOTAL

       0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00


       0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00


       0.00        0.00        0.00        0.00
       0.00        0.00        0.00        0.00

       0.00        0.00        0.00        0.00
```

e. EXAMPLE OF HOW TO USE THE BLANK STUDENT'S BUDGET MATRIX

If a student kept a record of his or her expenditures for one term, the budget might look like the following:

• STUDENT'S BUDGET •

ITEM	SEPT	OCT	NOV	DEC
INCOME				
WORK	$300	$300	$300	$300
AWARDS	100	100	100	100
ALLOWANCE	50	50	50	100
OTHER	5	5	5	25
EXPENSES				
TUITION	$500	$500	$500	$500
BOOKS	150	0	0	0
HOME	50	50	50	50
CLOTHING	40	40	30	130
FOOD	40	40	40	40
TRANSPORT	35	35	45	20
OTHER	15	20	15	15

Using the above shown information, input the data into your blank Student's Budget matrix for automatic calculations of net cash balances and total for each item.

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK STUDENT'S BUDGET MATRIX

Type the following information into the blank Student's Budget matrix as follows.

STEPS FOR INPUTTING DATA INTO THE BLANK ... page 1 ...

STUDENT'S BUDGET

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A2	<SYMBOL SHIFT> " FALL <ENTER>	INSERT FALL
A2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , A7 <ENTER>	GOTO BOX A7
A7	<SYMBOL SHIFT> " 1983 <ENTER>	INSERT 1983
A7	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , F3 <ENTER>	GOTO BOX F3
F3	300 <ENTER>	INSERT $300 INCOME, WORK SEPTEMBER
F3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , F3 <SYMBOL SHIFT> , F4 <SYMBOL SHIFT> : F6 <ENTER> <CAPS SHIFT> ↓	REPEAT $300 INCOME FOR OCTOBER, NOVEMBER AND DECEMBER

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 2 ...

• STUDENT'S BUDGET •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
G3	100 <ENTER>	INSERT $100 INCOME, AWARDS SEPTEMBER
G3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , G3 <SYMBOL SHIFT> , G4 <SYMBOL SHIFT> : G6 <ENTER> <CAPS SHIFT> ↓	REPEAT $100 INCOME FOR OCTOBER, NOVEMBER AND DECEMBER
H3	50 <ENTER>	INSERT $ 50 INCOME, ALLOWANCE SEPTEMBER
H3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , H3 <SYMBOL SHIFT> , H4 <SYMBOL SHIFT> : H5 <ENTER> <CAPS SHIFT> ↓	REPEAT $50 INCOME FOR OCTOBER AND NOVEMBER
I3	5 <ENTER>	INSERT $ 5 INCOME, OTHER SEPTEMBER

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 3 ...

• STUDENT'S BUDGET •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
I3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , I3 <SYMBOL SHIFT> , I4 <SYMBOL SHIFT> : I5 <ENTER>	REPEAT $5 INCOME FOR OCTOBER AND NOVEMBER
I3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , H6 <ENTER>	GOTO BOX H6
H6	100 <ENTER> <CAPS SHIFT> ↓	INSERT $100 INCOME, ALLOWANCE DECEMBER
I6	25 <ENTER>	INSERT $ 25 INCOME, OTHER DECEMBER
I6	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , M3 <ENTER>	GOTO BOX M3
M3	500 <ENTER>	INSERT $500 EXPENSE, TUITION SEPTEMBER,

STEPS FOR INPUTTING DATA INTO THE BLANK ...

continued page 4 ...

• STUDENT'S BUDGET •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
M3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , M3 <SYMBOL SHIFT> , M4 <SYMBOL SHIFT> : M6 <ENTER> <CAPS SHIFT> ↓	REPEAT SAME TUITION EXPENSE FOR OCTOBER, NOVEMBER AND DECEMBER
N3	150 <ENTER> <CAPS SHIFT> ↓	INSERT $150 EXPENSE, BOOKS SEPTEMBER
O3	50 <ENTER>	INSERT $50 EXPENSE, HOME SEPTEMBER
O3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , O3 <SYMBOL SHIFT> , O4 <SYMBOL SHIFT> : O6 <ENTER> <CAPS SHIFT> ↓	REPEAT SAME EXPENSE FOR OCTOBER, NOVEMBER AND DECEMBER
P3	40 <ENTER> <CAPS SHIFT> ->	INSERT $40 EXPENSE, CLOTHING SEPTEMBER

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 5 ...

● STUDENT'S BUDGET ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
P4	40 <ENTER> <CAPS SHIFT> ->	INSERT $40 EXPENSE, CLOTHING OCTOBER
P5	30 <ENTER> <CAPS SHIFT> ->	INSERT $30 EXPENSE, CLOTHING NOVEMBER
P6	130 <ENTER>	INSERT $130 EXPENSE, CLOTHING DECEMBER
P6	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , Q3 <ENTER>	GOTO BOX Q3
Q3	40 <ENTER>	INSERT $40 EXPENSE, FOOD SEPTEMBER
Q3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , Q3 <SYMBOL SHIFT> , Q4 <SYMBOL SHIFT> : Q6 <ENTER> <CAPS SHIFT> ↓	REPEAT SAME AMOUNT FOR FOOD OCTOBER, NOVEMBER AND DECEMBER

STEPS FOR INPUTTING DATA INTO THE BLANK ...

continued page 6 ...

● STUDENT'S BUDGET ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
R3	35 <ENTER> <CAPS SHIFT> ->	INSERT $35 EXPENSE, TRANSPORTATION FOR SEPTEMBER
R4	35 <ENTER> <CAPS SHIFT> ->	INSERT $35 EXPENSE, TRANSPORTATION FOR OCTOBER
R5	45 <ENTER> <CAPS SHIFT> ->	INSERT $45 EXPENSE, TRANSPORTATION FOR NOVEMBER
R6	20 <ENTER>	INSERT $20 EXPENSE, TRANSPORTATION FOR DECEMBER
R6	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , S3 <ENTER>	GOTO BOX S3

STEPS FOR INPUTTING DATA INTO THE BLANK ...

continued page 7 ...

● STUDENT'S BUDGET ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
S3	15 <ENTER> <CAPS SHIFT> ->	INSERT $15 EXPENSE, OTHER FOR SEPTEMBER
S4	20 <ENTER> <CAPS SHIFT> ->	INSERT $20 EXPENSE, OTHER FOR OCTOBER
S5	15 <ENTER> <CAPS SHIFT> ->	INSERT $15 EXPENSE, OTHER FOR NOVEMBER
S6	15 <ENTER>	INSERT $15 EXPENSE, OTHER FOR DECEMBER
S6	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

g. ILLUSTRATION OF COMPLETED STUDENT'S BUDGET MATRIX

This is what your completed Student's Budget matrix should look like.

● STUDENT'S BUDGET ●

```
        ●  STUDENT'S BUDGET  ●

page 1 ...



           01        02        03

   A    TERM:          FALL
   B
   C
   D    INCOME                     SEPT
   E
   F    WORK                     300.00
   G    AWARDS                   100.00
   H    ALLOWANCE                 50.00
   I    OTHER                      5.00
   J
   K    EXPENSES
   L
   M    TUITION                  500.00
   N    BOOKS                    150.00
   O    HOME                      50.00
   P    CLOTHING                  40.00
   Q    FOOD                      40.00
   R    TRANSPORTATION            35.00
   S    OTHER                     15.00
   T
   U    TOTALS
   V
   W    INCOME                   455.00
   X    EXPENSES                 830.00
   Y
   Z    NET CASH                -375.00
```

```
                         ●    STUDENT'S BUDGET    ●



                 ●    STUDENT'S BUDGET    ●

   continued page 2 ...


       04          05          06          07

                               YEAR:        1983

          OCT         NOV         DEC       TOTAL

       300.00      300.00      300.00     1200.00
       100.00      100.00      100.00      400.00
        50.00       50.00      100.00      250.00
         5.00        5.00       25.00       40.00



       500.00      500.00      500.00     2000.00
         0.00        0.00        0.00      150.00
        50.00       50.00       50.00      200.00
        40.00       30.00      130.00      240.00
        40.00       40.00       40.00      160.00
        35.00       45.00       20.00      135.00
        20.00       15.00       15.00       65.00



       455.00      455.00      525.00     1890.00
       685.00      680.00      755.00     2950.00

      -230.00     -225.00     -230.00     -1060.0
```

CHAPTER 3 ... FIVE MODERATELY COMPLEX VU-CALC MATRIXES

- TREASURY BILL INVESTMENT YIELD MATRIX 179
- BAR GRAPH MATRIX 199
- CREDIT CARD RECORD MATRIX 220
- HOME CASH FLOW MATRIX 241
- PERSONAL NET WORTH MATRIX 268

MODERATELY COMPLEX MATRIX EXERCISE

TREASURY BILL INVESTMENT YIELD MATRIX

a. OBJECTIVE 180

b. DOING IT BY HAND 181

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK TREASURY BILL INVESTMENT YIELD MATRIX 183

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MODERATELY
COMPLEX
MATRIX
EXERCISE

TREASURY BILL INVESTMENT YIELD MATRIX

a. OBJECTIVE

To create a Treasury Bill Investment Yield matrix that will automatically compute the annual investment yield for five Treasury Bills.

The matrix should look as illustrated below:

TREASURY BILL
INVESTMENT YIELD

BILL	RATE	DAYS	YIELD

b. DOING IT BY HAND

An investor's return on a Treasury Bill is the difference between the original cost of a Treasury Bill and the redemption at face value at maturity.

The quoted interest rate is simply the discount annualized; since the investor puts up less than the face value, yield is higher than the discounted rate.

In order to calculate the annualized yield by hand the following formula would have to be computed.

$$\frac{R \times 36500}{36000 - (R \times D)} = \text{investment yield}$$

R = discounted rate
D = the number of days left before the bill matures

To calculate the above formula for five Treasury Bills could be very time consuming.

To manually compute the formula for investment yield you would have to multiply R (discounted rate) by D (the number of days left), then subtract the figure from 36000,before dividing it into R (discounted rate) multiplied by 36500.

You can see that a matrix would save many hours, especially if you had one hundred Treasury Bills in a portfolio.

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK TREASURY BILL INVESTMENT YIELD MATRIX

The following steps will create a Treausry Bill Investment Yield matrix that will automatically calculate the annual investment yield for five Treasury Bills.

In order to create this blank matrix, type in the following information, being sure that your Caps Lock Key is on, so that your completed illustration will be in capital letters as shown in the book.

STEPS TO CREATE A BLANK ... page 1 ...

• TREASURY BILL INVESTMENT YIELD •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<CAPS SHIFT> <CAPS LOCK>	CAPITALIZE ALL LETTERS
A1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 2 <SYMBOL SHIFT> , <SYMBOL SHIFT> $ <ENTER>	FORMAT COLUMN 2 TO DOLLARS AND CENTS
A1	<SYMBOL SHIFT> " BILL <ENTER> <CAPS SHIFT> ->	INSERT BILL
A2	<SYMBOL SHIFT> " RATE <ENTER> <CAPS SHIFT> ->	INSERT RATE
A3	<SYMBOL SHIFT> " DAYS <ENTER> <CAPS SHIFT> ->	INSERT DAYS
A4	<SYMBOL SHIFT> " YIELD <ENTER>	INSERT YIELD

STEPS TO CREATE A BLANK ...

continued page 2 ...

• TREASURY BILL INVESTMENT YIELD •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A4	<SYMBOL SHIFT> # G	GOTO BOX C1
	<SYMBOL SHIFT> , C1	
	<ENTER>	
C1	<SYMBOL SHIFT> "	DRAWS DOTTED LINE
	<SYMBOL SHIFT> .	IN BOX C1
	<SYMBOL SHIFT> .	
	<SYMBOL SHIFT> .	
	<SYMBOL SHIFT> .	
	<SYMBOL SHIFT> .	
	<SYMBOL SHIFT> .	
	<SYMBOL SHIFT> .	
	<ENTER>	
C1	<SYMBOL SHIFT> # R	REPEATS DOTTED LINES
	<SYMBOL SHIFT> , C1	IN BOXES D1-G1
	<SYMBOL SHIFT> , D1	
	<SYMBOL SHIFT> : G1	
	<ENTER>	
	<CAPS SHIFT> ->	

STEPS TO CREATE A BLANK ...

continued page 3 ...

• TREASURY BILL INVESTMENT YIELD •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C2	0 <ENTER>	INSERT NUMBER ZERO
C2	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C2 <SYMBOL SHIFT> , C2 <SYMBOL SHIFT> : G3 <ENTER> <CAPS SHIFT> -> <CAPS SHIFT> ->	REPEAT TO ROW G
C4	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 4 <SYMBOL SHIFT> , <SYMBOL SHIFT> $ <ENTER>	FORMAT COLUMN 4 TO DOLLARS AND CENTS

STEPS TO CREATE A BLANK ...

continued page 4 ...

● TREASURY BILL INVESTMENT YIELD ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C4	<SYMBOL SHIFT> (C2 <SYMBOL SHIFT> * 36500 <SYMBOL SHIFT>) <SYMBOL SHIFT> / <SYMBOL SHIFT> (36000 <SYMBOL SHIFT> - <SYMBOL SHIFT> (C2 <SYMBOL SHIFT> * C3 <SYMBOL SHIFT>) <SYMBOL SHIFT>) <ENTER>	INSERT FORMULA FOR TREASURY BILL INVESTMENT YIELD
C4	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C4 <SYMBOL SHIFT> , D4 <SYMBOL SHIFT> : G4 <ENTER>	REPEATS SAME FORMULA IN BOXES D4-G4
C4	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C1 <ENTER>	GOTO BOX C1
C1	<SYMBOL SHIFT> # C	CALCULATE

d. ILLUSTRATION OF COMPLETED BLANK TREASURY BILL INVESTMENT YIELD MATRIX

Your blank Treasury Bill Investment Yield matrix should look like the following illustration.

```
                                   ●   TREASURY BILL INVESTMENT YIELD   ●

            ●   TREASURY BILL INVESTMENT YIELD   ●


                     01        02        03        04

          A         BILL      RATE      DAYS     YIELD
          B
          C   .......         0.00      0.00      0.00
          D   .......         0.00      0.00      0.00
          E   .......         0.00      0.00      0.00
          F   .......         0.00      0.00      0.00
          G   .......         0.00      0.00      0.00
```

e. EXAMPLE OF HOW TO USE THE BLANK TREASURY BILL INVESTMENT YIELD MATRIX

Let's assume we have a portfolio of five Treasury Bills for which we want to individually calculate the annual investment yield.

The following table describes each Treasury Bill in the portfolio to be calculated.

• TREASURY BILL INVESTMENT YIELD •

• TREASURY BILLS •

MATURITY DATE	DISCOUNTED RATE	DAYS TO MATURITY
11/9/83	10.85	2
11/7/83	10.69	10
12/3/83	11.03	17
12/1/83	10.62	24
12/7/83	10.31	30

NOTE: If you use maturity dates with more than seven characters, your data inputs will have to be in columns 3 and 4 and the yield formula in column 5.

By inputting the date in the table above into the Treasury Bill Investment Yield matrix each Bill will be automatically calculated.

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK TREASURY BILL INVESTMENT YIELD MATRIX

Type the following information into the blank Treasury Bill Investment Yield matrix as follows.

STEPS FOR INPUTTING DATA INTO THE BLANK ... page 1 ...

● TREASURY BILL INVESTMENT YIELD ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C1	<SYMBOL SHIFT> " 11 <SYMBOL SHIFT> / 9 <SYMBOL SHIFT> / 83 <ENTER> <CAPS SHIFT> ->	INSERT MATURITY DATE FOR FIRST BILL
C2	10 <SYMBOL SHIFT> .85 <ENTER> <CAPS SHIFT> ->	INSERT RATE
C3	2 <ENTER>	INSERT DAYS REMAINING TO MATURITY
C3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , D1 <ENTER>	GOTO BOX D1
D1	<SYMBOL SHIFT> " 11 <SYMBOL SHIFT> / 7 <SYMBOL SHIFT> / 83 <ENTER> <CAPS SHIFT> ->	INSERT MATURITY DATE FOR SECOND BILL

STEPS FOR INPUTTING DATA INTO THE BLANK ...

continued page 2 ...

• TREASURY BILL INVESTMENT YIELD •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
D2	10 <SYMBOL SHIFT> .69 <ENTER> <CAPS SHIFT> ->	INSERT RATE
D3	10 <ENTER>	INSERT DAYS REMAINING TO MATURITY
D3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , E1 <ENTER>	GOTO BOX E1
E1	<SYMBOL SHIFT> " 12 <SYMBOL SHIFT> / 3 <SYMBOL SHIFT> / 83 <ENTER> <CAPS SHIFT> ->	INSERT MATURITY DATE FOR THIRD BILL
E2	11 <SYMBOL SHIFT> .03 <ENTER> <CAPS SHIFT> ->	INSERT RATE
E3	17 <ENTER>	INSERT DAYS REMAINING TO MATURITY

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 3 ...

TREASURY BILL INVESTMENT YIELD

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
E3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , F1 <ENTER>	GOTO BOX F1
F1	<SYMBOL SHIFT> " 12 <SYMBOL SHIFT> / 1 <SYMBOL SHIFT> / 83 <ENTER> <CAPS SHIFT> ->	INSERT MATURITY DATE FOR FOURTH BILL
F2	10 <SYMBOL SHIFT> .62 <ENTER> <CAPS SHIFT> ->	INSERT RATE
F3	24 <ENTER>	INSERT DAYS REMAINING TO MATURITY
F3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , G1 <ENTER>	GOTO BOX G1

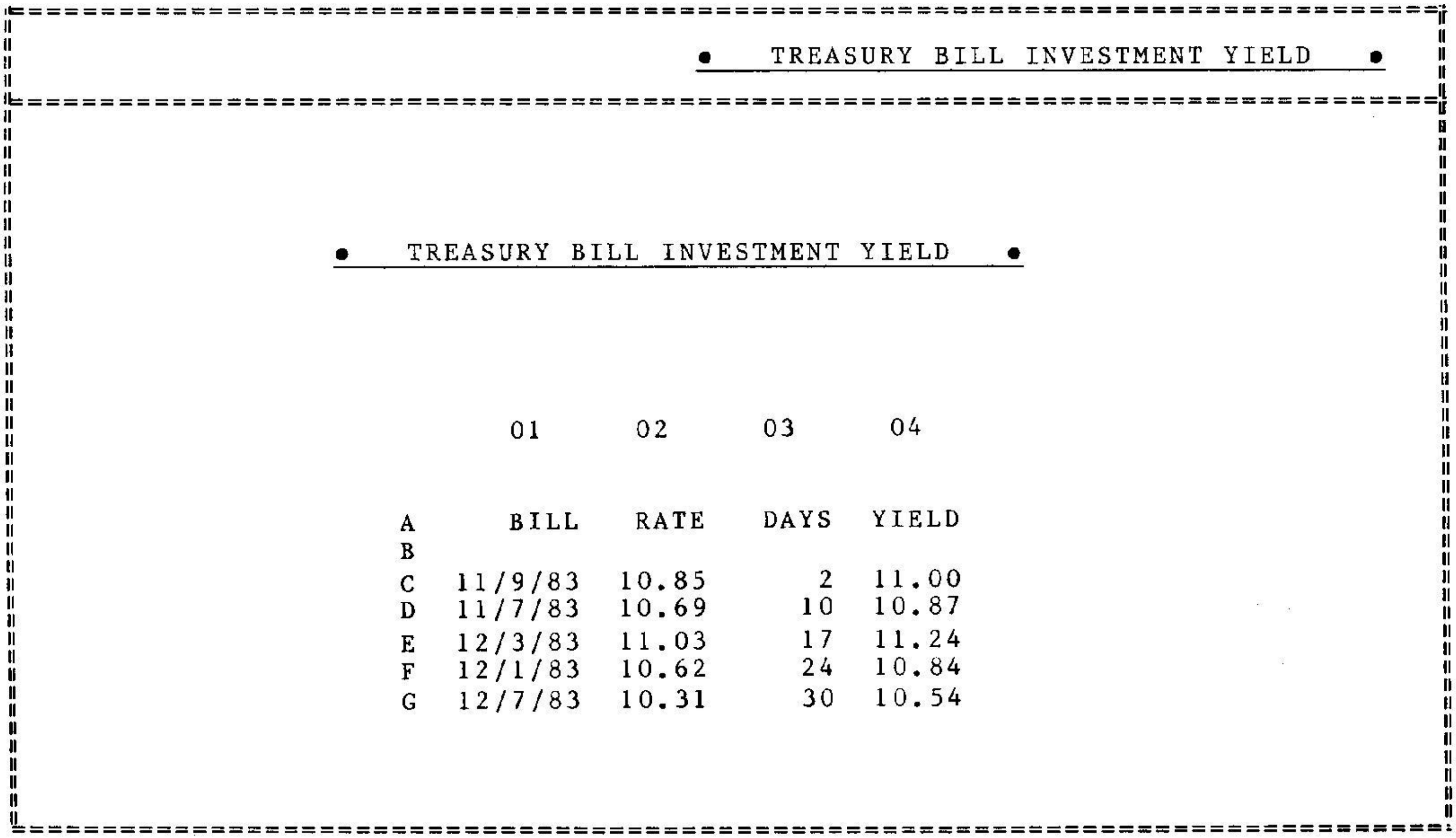
STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 4 ...

• TREASURY BILL INVESTMENT YIELD •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
G1	<SYMBOL SHIFT> " 12 <SYMBOL SHIFT> / 7 <SYMBOL SHIFT> / 83 <ENTER> <CAPS SHIFT> ->	INSERT MATURITY DATE FOR FIFTH BILL
G2	10 <SYMBOL SHIFT> .31 <ENTER> <CAPS SHIFT> ->	INSERT RATE
G3	30 <ENTER>	INSERT DAYS REMAINING TO MATURITY
G3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , A1 <ENTER>	GOTO BOX A1
A1	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

g. ILLUSTRATION OF COMPLETED TREASURY BILL INVESTMENT YIELD MATRIX

The following is what your completed Treasury Bill Investment Yield matrix should look like.



```
●   TREASURY BILL INVESTMENT YIELD   ●

●   TREASURY BILL INVESTMENT YIELD   ●

          01       02       03       04

A       BILL     RATE     DAYS    YIELD
B
C    11/9/83    10.85        2    11.00
D    11/7/83    10.69       10    10.87
E    12/3/83    11.03       17    11.24
F    12/1/83    10.62       24    10.84
G    12/7/83    10.31       30    10.54
```

MODERATELY COMPLEX MATRIX EXERCISE

BAR GRAPH MATRIX

a. OBJECTIVE 200

b. DOING IT BY HAND 200

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK BAR GRAPH MATRIX 203

d. ILLUSTRATION OF COMPLETED BLANK BAR GRAPH MATRIX 211

e. EXAMPLE OF HOW TO USE THE BLANK BAR GRAPH MATRIX 213

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK BAR GRAPH MATRIX 214

g. ILLUSTRATION OF COMPLETED BAR GRAPH MATRIX 218

MODERATELY COMPLEX MATRIX EXERCISE

BAR GRAPH MATRIX

a. OBJECTIVE

To create a Bar Graph matrix with a vertical and horizontal axis, to graphically display sales in thousands of dollars for the first, second, third and fourth quarters.

b. DOING IT BY HAND

Creation of a Bar Graph by hand for the purpose specified above would require the following steps.

1. Drawing the vertical axis.

2. Drawing the horizontal axis.

3. Sub-dividing the vertical axis into various sub-divisions to accommodate the varying dollar amounts.

4. Sub-dividing the horizontal axis into four sub-divisions to accommodate the four quarters.

5. Inserting the labels, such as sales and year.

In all probability you would require the services of an artist or some outside professional charting service to create a Bar Graph for your data presentations.

In addition, all the steps would have to be repeated whenever you wanted new data displayed, which is not only costly but time consuming as well.

By creating a Bar Graph matrix as specified below, all of the above steps would be eliminated, and the matrix could be used numerous times to accommodate changes in data displayed.

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK BAR GRAPH MATRIX

The following steps will create a Sales Bar Graph matrix for four quarters that will automatically accommodate changes in Sales Volume in thousands (000) of dollars.

In order to create this Sales Bar Graph matrix, type in the following information, being sure that your Caps Lock Key is on, so that your completed illustration will be in capital letters as shown in the book.

STEPS TO CREATE A BLANK ... page 1 ...

• BAR GRAPH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<CAPS SHIFT> <CAPS LOCK>	CAPITALIZE ALL LETTERS
A1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , A <SYMBOL SHIFT> , I <ENTER>	SETS ALL BOXES TO WHOLE NUMBERS
A1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , F1 <ENTER>	GOTO BOX F1
F1	<SYMBOL SHIFT> " SALES <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT SALES
H1	<SYMBOL SHIFT> " <SYMBOL SHIFT> (000 <SYMBOL SHIFT>) <ENTER>	INSERT LABEL FOR THOUSANDS

STEPS TO CREATE A BLANK ...

continued page 2 ...

• BAR GRAPH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
H1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , D2 <ENTER>	GOTO BOX D2
D2	0 <ENTER> <CAPS SHIFT> ↓	INSERT NUMBER ZERO
E2	D2 <SYMBOL SHIFT> - <SYMBOL SHIFT> (<SYMBOL SHIFT> .1 <SYMBOL SHIFT> * <SYMBOL SHIFT> $D2 <SYMBOL SHIFT>) <ENTER>	90% OF THE HIGHEST SALES FIGURE IN BOX D2 WHICH IS KEPT CONSTANT
E2	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , E2 <SYMBOL SHIFT> , F2 <SYMBOL SHIFT> : M2 <ENTER>	COMPUTES 10% INTERVALS ON THE VERTICAL AXIS DOWN TO COLUMN M

STEPS TO CREATE A BLANK ...

continued page 3 ...

• BAR GRAPH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
E2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , D3 <ENTER>	GOTO BOX D3
D3	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 3 <SYMBOL SHIFT> , G <SYMBOL SHIFT> , L <ENTER>	FORMAT COLUMN 3 TO THE LEFT
D3	<SYMBOL SHIFT> " <SYMBOL SHIFT> ! <ENTER>	INSERT EXCLAMATION MARK
D3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , D3 <SYMBOL SHIFT> , E3 <SYMBOL SHIFT> : M3 <ENTER>	DRAWS VERTICAL AXIS

STEPS TO CREATE A BLANK ...

continued page 4 ...

• BAR GRAPH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
D3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , N2 <ENTER>	GOTO BOX N2
N2	0 <ENTER> <CAPS SHIFT> ->	INSERT NUMBER ZERO
N3	<SYMBOL SHIFT> " <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> - <ENTER>	DRAWS LINE IN BOX N3
N3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , N3 <SYMBOL SHIFT> , N4 <SYMBOL SHIFT> : N6 <ENTER> <CAPS SHIFT> ↓	REPEATS HORIZONTAL AXIS THROUGH COLUMN 6

STEPS TO CREATE A BLANK ...

continued page 5 ...

• BAR GRAPH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
03	<SYMBOL SHIFT> " <SYMBOL SHIFT> - <SYMBOL SHIFT> - 1ST <SYMBOL SHIFT> <SYMBOL SHIFT> - <SYMBOL SHIFT> - <ENTER> <CAPS SHIFT> ->	INSERT 1, FIRST QUARTER
04	<SYMBOL SHIFT> " <SYMBOL SHIFT> - <SYMBOL SHIFT> - 2ND <SYMBOL SHIFT> <SYMBOL SHIFT> - <SYMBOL SHIFT> - <ENTER> <CAPS SHIFT> ->	INSERT 2, SECOND QUARTER

STEPS TO CREATE A BLANK ... continued page 6 ...

• BAR GRAPH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
05	<SYMBOL SHIFT> " <SYMBOL SHIFT> - <SYMBOL SHIFT> - 3RD <SYMBOL SHIFT> <SYMBOL SHIFT> - <SYMBOL SHIFT> - <ENTER> <CAPS SHIFT> ->	INSERT 3, THIRD QUARTER
06	<SYMBOL SHIFT> " <SYMBOL SHIFT> - <SYMBOL SHIFT> - 4TH <SYMBOL SHIFT> <SYMBOL SHIFT> - <SYMBOL SHIFT> - <ENTER>	INSERT 4, FOURTH QUARTER

STEPS TO CREATE A BLANK ...

continued page 7 ...

• BAR GRAPH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
O6	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , Q4 <ENTER>	GOTO BOX Q4
Q4	<SYMBOL SHIFT> " 1983 <SPACE BAR> QTRS <ENTER>	INSERT 1983 QUARTERS
Q4	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , D2 <ENTER>	GOTO BOX D2
D2	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

d. ILLUSTRATION OF COMPLETED BLANK BAR GRAPH MATRIX

Your blank Bar Graph matrix should look like the following illustration.

```
==========================================================================
||                                                   ●   BAR GRAPH    ●  ||
==========================================================================
||                                                                       ||
||                         ●   BAR GRAPH    ●                            ||
||                                                                       ||
||                 01     02     03     04     05     06                 ||
||                                                                       ||
||         A                                                             ||
||         B                                                             ||
||         C                                                             ||
||         D                    0  !                                     ||
||         E                    0  !                                     ||
||         F      SALES         0  !                                     ||
||         G                    0  !                                     ||
||         H      (000)         0  !                                     ||
||         I                    0  !                                     ||
||         J                    0  !                                     ||
||         K                    0  !                                     ||
||         L                    0  !                                     ||
||         M                    0  !                                     ||
||         N                    0  ------------------------              ||
||         O                       --1ST----2ND----3RD----4TH--          ||
||         P                                                             ||
||         Q                             1983 QTRS                       ||
==========================================================================
```

e. EXAMPLE OF HOW TO USE THE BLANK BAR GRAPH MATRIX

Let's assume you want to graphically display sales data as illustrated in the chart below:

SALES	QUARTER
$ 200,000	1st
$ 500,000	2nd
$ 600,000	3rd
$ 800,000	4th

Inputting the above shown information into the blank Bar Graph matrix will automatically create a graph that will sub-divide sales into ten sub-divisions and show sales for each of four quarters for 1983.

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK BAR GRAPH MATRIX

Type the following information into the blank Bar Graph matrix as follows.

STEPS FOR INPUTTING DATA INTO THE BLANK ... page 1 ...

• BAR GRAPH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
D2	1000 <ENTER>	INSERT 1,000 (ONE MILLION SALES)
D2	<SYMBOL SHIFT> # C <ENTER>	CALCULATE
D2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , L3 <ENTER>	GOTO BOX L3
L3	<SYMBOL SHIFT> " <SYMBOL SHIFT> ! <SPACE BAR> <SYMBOL SHIFT> ! <SYMBOL SHIFT> * <SYMBOL SHIFT> * <SYMBOL SHIFT> * <SYMBOL SHIFT> ! <ENTER>	INSERT 1ST QUARTER SALES ($200,000)

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 2 ...

• BAR GRAPH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
L3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , L3 <SYMBOL SHIFT> , L3 <SYMBOL SHIFT> : M3 <ENTER>	FILL IN GRAPH FOR FIRST QUARTER
L3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , I4 <ENTER>	GOTO BOX I4
I4	<SYMBOL SHIFT> " <SYMBOL SHIFT> ! <SYMBOL SHIFT> * <SYMBOL SHIFT> * <SYMBOL SHIFT> * <SYMBOL SHIFT> ! <ENTER>	INSERT 2ND QUARTER SALES ($500,000)

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 3 ...

• BAR GRAPH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
I4	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , I4 <SYMBOL SHIFT> , J4 <SYMBOL SHIFT> : M4 <ENTER>	FILL IN GRAPH FOR SECOND QUARTER
I4	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , I4 <SYMBOL SHIFT> , H5 <SYMBOL SHIFT> : M5 <ENTER>	INSERT 3RD QUARTER SALES ($600,000)
I4	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , I4 <SYMBOL SHIFT> , F6 <SYMBOL SHIFT> : M6 <ENTER>	INSERT 4TH QUARTER SALES ($800,000)

g. ILLUSTRATION OF COMPLETED BAR GRAPH MATRIX

This is what your completed Bar Graph matrix should look like after you input the data for four quarters of 1983.

```
                                        ●  BAR GRAPH  ●

              ●  BAR GRAPH  ●

        01    02    03    04    05    06

A
B
C
D             1000 !
E              900 !
F    SALES     800 !                   !***!
G              700 !                   !***!
H    (000)     600 !             !***! !***!
I              500 !       !***! !***! !***!
J              400 !       !***! !***! !***!
K              300 !       !***! !***! !***!
L              200 ! !***! !***! !***! !***!
M              100 ! !***! !***! !***! !***!
N                0 -------------------------
O                  --1ST----2ND----3RD----4TH--
P
Q                         1983 QTRS
```

• MODERATELY •
• COMPLEX •
• MATRIX •
• EXERCISE •

• CREDIT CARD RECORD MATRIX •

a. OBJECTIVE 221

b. DOING IT BY HAND 222

c. ACTUAL STEP-BY-STEP 223
INSTRUCTIONS FOR
CREATING A BLANK
CREDIT CARD RECORD
MATRIX

d. ILLUSTRATION OF 231
COMPLETED BLANK
CREDIT CARD RECORD
MATRIX

e. EXAMPLE OF HOW TO 233
USE THE BLANK
CREDIT CARD RECORD
MATRIX

f. ACTUAL STEPS FOR 235
INPUTTING DATA
INTO THE BLANK
CREDIT CARD RECORD
MATRIX

g. ILLUSTRATION OF 239
COMPLETED
CREDIT CARD RECORD
MATRIX

• MODERATELY •

• COMPLEX •

• MATRIX •

• EXERCISE •

• CREDIT CARD RECORD MATRIX •

a. OBJECTIVE

To create a Credit Card Record matrix for three Credit Cards that will automatically record and total each charge expenditure.

In addition, the matrix will deduct the charges from an existing Line of Credit and calculate a new balance each time a charge is made.

b. DOING IT BY HAND

Credit Card Record keeping for home or business can be a burdensome task.

A Credit Card Record matrix not only calculates charges more quickly, but keeps an accurate record and balance, maintained on a continuous up-to-date basis. In order to keep a Credit Card Record by hand you would have to record each charge and then substract it from the previous balance.

You can create a simple matrix quickly to accomplish this record keeping chore by following the steps described below.

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK CREDIT CARD RECORD MATRIX

The following steps will create a Credit Card Record matrix that will automatically deduct each Credit Card expenditure you record and maintain a balance after each transaction.

In order to create this Credit Card Record matrix, type in the following information, being sure that your Caps Lock Key is on, so that your completed illustration will be in capital letters as shown in the book.

STEPS TO CREATE A BLANK ... page 1 ...

• CREDIT CARD RECORD •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<CAPS SHIFT> <CAPS LOCK>	CAPITALIZE ALL LETTERS
A1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , A <SYMBOL SHIFT> , <SYMBOL SHIFT> $ <ENTER> <CAPS SHIFT> ->	SETS ALL NUMBERS TO DOLLARS AND CENTS
A2	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 1 <SYMBOL SHIFT> , L <ENTER>	FORMAT LABELS TO THE LEFT IN COLUMN 1
A2	<SYMBOL SHIFT> " AMERICN <ENTER> <CAPS SHIFT> ->	INSERT AMERICAN
A3	<SYMBOL SHIFT> " MASTER <ENTER> <CAPS SHIFT> ->	INSERT MASTER
A4	<SYMBOL SHIFT> " VISA <ENTER>	INSERT VISA

STEPS TO CREATE A BLANK ... continued page 2 ...

CREDIT CARD RECORD

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A4	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , B2 <ENTER>	GOTO BOX B2
B2	<SYMBOL SHIFT> " EXPRESS <ENTER> <CAPS SHIFT> ->	INSERT EXPRESS
B3	<SYMBOL SHIFT> " CHARGE <ENTER>	INSERT CHARGE
B3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C1 <ENTER>	GOTO BOX C1
C1	<SYMBOL SHIFT> " CHARGE <ENTER> <CAPS SHIFT> ↓	INSERT CHARGE
D1	<SYMBOL SHIFT> " DATE <SYMBOL SHIFT> : <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT DATE:

STEPS TO CREATE A BLANK ...

continued page 3 ...

• CREDIT CARD RECORD •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
F1	<SYMBOL SHIFT> " <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> - <ENTER>	INSERT LINE IN BOX F1
F1	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , F1 <SYMBOL SHIFT> , G1 <SYMBOL SHIFT> : M1 <ENTER>	REPEAT LINES IN BOXES G1 TO M1

STEPS TO CREATE A BLANK ...

continued page 4 ...

CREDIT CARD RECORD

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
F1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , ` N1 <ENTER>	GOTO BOX N1
N1	<SYMBOL SHIFT> " TOTAL <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT TOTAL
P1	<SYMBOL SHIFT> " CREDIT <ENTER> <CAPS SHIFT> ↓	INSERT CREDIT
Q1	<SYMBOL SHIFT> " LINE <SYMBOL SHIFT>. <SYMBOL SHIFT>. <SYMBOL SHIFT>. <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT LINE ....

STEPS TO CREATE A BLANK ...

continued page 5 ...

• CREDIT CARD RECORD •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
S1	<SYMBOL SHIFT> " BALANCE <ENTER>	INSERT BALANCE
S1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , F2 <ENTER>	GOTO BOX F2
F2	0 <ENTER>	INSERT NUMBER ZERO IN BOX F2
F2	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , F2 <SYMBOL SHIFT> , F2 <SYMBOL SHIFT> : M4 <ENTER>	REPEAT ZEROS IN COLUMNS 2,3 AND 4, DOWN TO ROW M
F2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , N2 <ENTER>	GOTO BOX N2
N2	<SYMBOL SHIFT> & F2 <SYMBOL SHIFT> : M2 <ENTER>	INSERT FORMULA TO ADD BOXES F2 THROUGH M2 ALL AMERICAN EXPRESS CHARGES

STEPS TO CREATE A BLANK ...

continued page 6 ...

• CREDIT CARD RECORD •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
N2	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , N2 <SYMBOL SHIFT> , N3 <SYMBOL SHIFT> : N4 <ENTER>	REPEAT FORMULA TO ADD EXPENDITURES IN COLUMNS 3 AND 4 MASTER AND VISA CHARGES
N2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , S2 <ENTER>	GOTO BOX S2
S2	Q2 <SYMBOL SHIFT> - N2 <ENTER>	INSERT FORMULA TO SUBTRACT TOTAL EXPENDITURES BOX N2 FROM CREDIT LINE BOX Q2

STEPS TO CREATE A BLANK ...

continued page 7 ...

• CREDIT CARD RECORD •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
S2	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , S2 <SYMBOL SHIFT> , S3 <SYMBOL SHIFT> : S4 <ENTER>	REPEAT FORMULA AS ABOVE, SUBTRACT BOX N3 FROM Q3 AND N4 FROM Q4 FOR MASTER CHARGE AND VISA
S2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , Q2 <ENTER>	GOTO BOX Q2
Q2	0 <ENTER>	INSERT NUMBER ZERO
Q2	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , Q2 <SYMBOL SHIFT> , Q3 <SYMBOL SHIFT> : Q4 <ENTER>	REPEAT ZEROS IN BOXES Q3 AND Q4
Q2	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

d. ILLUSTRATION OF COMPLETED BLANK CREDIT CARD RECORD MATRIX

Your blank Credit Card Record matrix should look like the following illustration.

● CREDIT CARD RECORD ●

```
        ●  CREDIT CARD RECORD  ●



             01         02         03         04


A                    AMERICN MASTER     VISA
B                    EXPRESS CHARGE
C        CHARGE
D        DATE:
E
F        .......     0.00       0.00       0.00
G        .......     0.00       0.00       0.00
H        .......     0.00       0.00       0.00
I        .......     0.00       0.00       0.00
J        .......     0.00       0.00       0.00
K        .......     0.00       0.00       0.00
L        .......     0.00       0.00       0.00
M        .......     0.00       0.00       0.00
N        TOTAL       0.00       0.00       0.00
O
P        CREDIT
Q        LINE....    0.00       0.00       0.00
R
S        BALANCE     0.00       0.00       0.00
```

e. EXAMPLE OF HOW TO USE THE BLANK CREDIT CARD RECORD MATRIX

If you had the three Credit Cards illustrated in the blank matrix, you probably would also have a certain amount of Credit extended to you from each Credit Card Company.

Assume your Lines of Credit were as follows:

CREDIT CARD	LINE OF CREDIT
AMERICAN EXPRESS	$ 500
MASTER CHARGE	$ 200
VISA	$ 200

Further, let us assume you had the following expenditures:

1/25/83 ...		
	AMERICAN EXPRESS	$ 250.50
2/20/83 ...		
	MASTER CHARGE	670.45
4/25/83 ...		
	VISA	102.00
6/12/83 ...		
	AMERICAN EXPRESS	123.00

By inputting the data shown above into your blank matrix, you will create a record of each transaction, as well as a running balance against your Line of Credit for each Credit Card.

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK CREDIT CARD RECORD MATRIX

Type the following information into the blank Credit Card Record matrix as follows.

STEPS FOR INPUTTING DATA INTO THE BLANK ... page 1 ...

• CREDIT CARD RECORD •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
Q2	500 <ENTER> <CAPS SHIFT> ->	INSERT AMERICAN EXPRESS CREDIT LINE $500.00
Q3	200 <ENTER> <CAPS SHIFT> ->	INSERT MASTER CHARGE CREDIT LINE $200.00
Q4	200 <ENTER>	INSERT VISA CREDIT LINE $200.00
	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , F1 <ENTER>	GOTO BOX F1
F1	<SYMBOL SHIFT> " 1 <SYMBOL SHIFT> /25 <SYMBOL SHIFT> /83 <ENTER> <CAPS SHIFT> ->	INSERT DATE OF CHARGE
F2	250 <SYMBOL SHIFT> .25 <ENTER>	INSERT AMERICAN EXPRESS CHARGE $250.25

STEPS FOR INPUTTING DATA INTO THE BLANK ...

continued page 2 ...

• CREDIT CARD RECORD •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
F2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , G1 <ENTER>	GOTO BOX G1
G1	<SYMBOL SHIFT> " 2 <SYMBOL SHIFT> /20 <SYMBOL SHIFT> /83 <ENTER> <CAPS SHIFT> -> <CAPS SHIFT> ->	INSERT DATE OF CHARGE
G3	670 <SYMBOL SHIFT> .45 <ENTER>	INSERT MASTER CHARGE $670.45
G3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , H1 <ENTER>	GOTO BOX H1
H1	<SYMBOL SHIFT> " 4 <SYMBOL SHIFT> /25 <SYMBOL SHIFT> /83 <ENTER>	INSERT DATE OF CHARGE

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 3 ...

● CREDIT CARD RECORD ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
H1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , H4 <ENTER>	GOTO BOX H4
H4	102 <ENTER>	INSERT VISA CHARGE $102.00
H4	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , I1 <ENTER>	GOTO BOX I1
I1	<SYMBOL SHIFT> " 6 <SYMBOL SHIFT> /12 <SYMBOL SHIFT> /83 <ENTER> <CAPS SHIFT> ->	INSERT DATE OF CHARGE
I2	123 <ENTER>	INSERT SECOND AMERICAN EXPRESS CHARGE OF $123.00
I2	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

g. ILLUSTRATION OF COMPLETED CREDIT CARD RECORD MATRIX

The following illustration is what your completed Credit Card Record matrix should look like.

● CREDIT CARD RECORD ●

```
        ●  CREDIT CARD RECORD  ●



          01       02       03       04

A                AMERICN  MASTER     VISA
B                EXPRESS  CHARGE
C     CHARGE
D     DATE:
E
F     1/25/83  250.25     0.00     0.00
G     2/20/83    0.00   670.45     0.00
H     4/25/83    0.00     0.00   102.00
I     6/12/83  123.00     0.00     0.00
J     .......    0.00     0.00     0.00
K     .......    0.00     0.00     0.00
L     .......    0.00     0.00     0.00
M     .......    0.00     0.00     0.00
N     TOTAL    373.25   670.45   102.00
O
P     CREDIT
Q     LINE....500.00   200.00   200.00
R
S     BALANCE 126.75-  470.45    98.00
```

MODERATELY COMPLEX MATRIX EXERCISE

HOME CASH FLOW MATRIX

a. OBJECTIVE 242

b. DOING IT BY HAND 243

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK HOME CASH FLOW MATRIX 246

d. ILLUSTRATION OF COMPLETED BLANK HOME CASH FLOW MATRIX 257

e. EXAMPLE OF HOW TO USE THE BLANK HOME CASH FLOW MATRIX 259

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK HOME CASH FLOW MATRIX 261

g. ILLUSTRATION OF COMPLETED HOME CASH FLOW MATRIX 266

● MODERATELY ● ● COMPLEX ● ● MATRIX ● ● EXERCISE ●

● HOME CASH FLOW MATRIX ●

a. OBJECTIVE

To create a Home Cash Flow matrix for a three-month period that will automatically track your monthly income and expenses, as well as the remaining balance.

In addition, the matrix will individually calculate five income items and eleven fixed expense items.

b. DOING IT BY HAND

Keeping track of your monthly income and expenses can be a time consuming task. However, a good budget is not only a good tool that can help you achieve financial control over your goals, but also a record for preparing Income Tax Returns.

An itemization of the above described budget might very well look like the one that follows.

• HOME CASH FLOW •

```
             • HOME CASH FLOW •


                                          1ST
INCOME                JAN   FEB   MAR     QTR


      SALARY
      DIVIDENDS
      INTEREST
      CAPITAL GAINS
      OTHER INCOME
      TOTAL INCOME


EXPENSES


      FOOD
      RENT
      ELECTRIC
      FEDERAL TAX
      STATE TAX
      LOCAL TAX
      SALES TAX
      MEDICAL
      CLOTHING
      ENTERTAINMENT
      SAVINGS
      TOTAL

      BALANCE
```

Using the Cash Flow Budget as described above would require the following steps:

1. Adding all the income items and all the expense items for each month of the quarter.

2. Calculating the balance by subtracting the accumulated expenses from the accumulated income.

3. Adding each item of income and expense for the three-month period.

All of the above described steps can easily be reduced to a matrix that will automatically calculate your Cash Flow balance, as well as each income and expense item for three months.

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK HOME CASH FLOW MATRIX

The following steps will create a Home Cash Flow matrix that will automatically compute your income and expenses and provide a net cash flow balance.

In order to create this Home Cash Flow matrix, type the following information, being sure that your Caps Lock Key is on, so that your completed illustration will be in capital letters as shown in the book.

STEPS TO CREATE A BLANK ... page 1 ...

• HOME CASH FLOW •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<CAPS SHIFT> <CAPS LOCK>	CAPITALIZE ALL LETTERS
A1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 1 <SYMBOL SHIFT> , L <ENTER>	FORMAT LABELS TO THE LEFT IN COLUMN 1
A1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 2 <SYMBOL SHIFT> , L <ENTER>	FORMAT LABELS TO THE LEFT IN COLUMN 2
A1	<SYMBOL SHIFT> " INCOME <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT INCOME
C1	<SYMBOL SHIFT> " SALARY <ENTER> <CAPS SHIFT> ↓	INSERT SALARY

STEPS TO CREATE A BLANK ...

continued page 2 ...

• HOME CASH FLOW •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
D1	<SYMBOL SHIFT> " DIVIDEND <ENTER> <CAPS SHIFT> ↓	INSERT DIVIDEND
E1	<SYMBOL SHIFT> " INTEREST <ENTER> <CAPS SHIFT> ↓	INSERT INTEREST
F1	<SYMBOL SHIFT> " CAPITAL <SPACE BAR> GAIN <ENTER> <CAPS SHIFT> ↓	INSERT CAPITAL GAINS
G1	<SYMBOL SHIFT> " OTHER <ENTER> <CAPS SHIFT> ↓	INSERT OTHER
H1	<SYMBOL SHIFT> " TOTAL <SPACE BAR> INCOME <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT TOTAL INCOME

STEPS TO CREATE A BLANK ...

continued page 3 ...

● HOME CASH FLOW ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
J1	<SYMBOL SHIFT> " EXPENSE <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT EXPENSES
L1	<SYMBOL SHIFT> " FOOD <ENTER> <CAPS SHIFT> ↓	INSERT FOOD
M1	<SYMBOL SHIFT> " RENT <ENTER> <CAPS SHIFT> ↓	INSERT RENT
N1	<SYMBOL SHIFT> " ELECTRIC <ENTER> <CAPS SHIFT> ↓	INSERT ELECTRIC
O1	<SYMBOL SHIFT> " FEDERAL <SPACE BAR> TAX <ENTER> <CAPS SHIFT> ↓	INSERT FEDERAL TAX

STEPS TO CREATE A BLANK ...

continued page 4 ...

• HOME CASH FLOW •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
P1	<SYMBOL SHIFT> " STATE <SPACE BAR> TAX <ENTER> <CAPS SHIFT> ↓	INSERT STATE TAX
Q1	<SYMBOL SHIFT> " LOCAL <SPACE BAR> TAX <ENTER> <CAPS SHIFT> ↓	INSERT LOCAL TAX
R1	<SYMBOL SHIFT> " SALES <SPACE BAR> TAX <ENTER> <CAPS SHIFT> ↓	INSERT SALES TAX
S1	<SYMBOL SHIFT> " MEDICAL <ENTER> <CAPS SHIFT> ↓	INSERT MEDICAL
T1	<SYMBOL SHIFT> " CLOTHING <ENTER> <CAPS SHIFT> ↓	INSERT CLOTHING

STEPS TO CREATE A BLANK ...

continued page 5 ...

• HOME CASH FLOW •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
U1	<SYMBOL SHIFT> " ENTERTAINMENT <ENTER> <CAPS SHIFT> ↓	INSERT ENTERTAINMENT
V1	<SYMBOL SHIFT> " SAVINGS <ENTER> <CAPS SHIFT> ↓	INSERT SAVINGS
W1	<SYMBOL SHIFT> " TOTAL <SPACE BAR> EXPENSE <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT TOTAL EXPENSES
Y1	<SYMBOL SHIFT> " BALANCE <ENTER>	INSERT BALANCE
Y1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , A3 <ENTER>	GOTO BOX A3
A3	<SYMBOL SHIFT> " JAN <ENTER> <CAPS SHIFT> ->	INSERT JANUARY

STEPS TO CREATE A BLANK ...

continued page 6 ...

• HOME CASH FLOW •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A4	<SYMBOL SHIFT> " FEB <ENTER> <CAPS SHIFT> ->	INSERT FEBRUARY
A5	<SYMBOL SHIFT> " MAR <ENTER> <CAPS SHIFT> ->	INSERT MARCH
A6	<SYMBOL SHIFT> " 1 <SPACE BAR> QTR <ENTER>	INSERT 1ST QUARTER
A6	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C3 <ENTER>	GOTO BOX C3
C3	0 <ENTER>	INSERT NUMBER ZERO
C3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C3 <SYMBOL SHIFT> , C3 <SYMBOL SHIFT> : G6 <ENTER>	REPEAT ZEROS FOR ALL INCOME ITEMS

STEPS TO CREATE A BLANK ...

continued page 7 ...

• HOME CASH FLOW •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C3 <SYMBOL SHIFT> , L3 <SYMBOL SHIFT> : V6 <ENTER>	REPEAT ZEROS FOR ALL EXPENSE ITEMS
C3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C6 <ENTER>	GOTO BOX C6
C6	<SYMBOL SHIFT> & C3 <SYMBOL SHIFT> : C5 <ENTER>	INSERT FORMULA TO ADD SALARY INCOME FOR 1ST QUARTER TOTAL
C6	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C6 <SYMBOL SHIFT> , D6 <SYMBOL SHIFT> : G6 <ENTER>	REPEAT FORMULA TO ADD ALL OTHER INCOME ITEMS

STEPS TO CREATE A BLANK ...

continued page 8 ...

● HOME CASH FLOW ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C6	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C6 <SYMBOL SHIFT> , L6 <SYMBOL SHIFT> : V6 <ENTER>	REPEAT FORMULA TO ADD EACH FIXED EXPENSE ITEM FOR 1ST QUARTER
C6	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , H3 <ENTER>	GOTO BOX H3
H3	<SYMBOL SHIFT> & C3 <SYMBOL SHIFT> : G3 <ENTER>	INSERT FORMULA TO ADD INCOME ITEMS FOR JANUARY
H3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , H3 <SYMBOL SHIFT> , H4 <SYMBOL SHIFT> : H6 <ENTER>	REPEAT FORMULA TO ADD INCOME ITEMS FOR FEBRUARY, MARCH AND THE 1ST QUARTER
H3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , W3 <ENTER>	GOTO BOX W3

STEPS TO CREATE A BLANK ...

continued page 9 ...

• HOME CASH FLOW •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
W3	<SYMBOL SHIFT> & L3 <SYMBOL SHIFT> : V3 <ENTER>	INSERT FORMULA TO ADD EXPENSES FOR JANUARY
W3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , W3 <SYMBOL SHIFT> , W4 <SYMBOL SHIFT> : W6 <ENTER>	REPEAT FORMULA TO ADD EXPENSE ITEMS FOR FEBRUARY, MARCH AND THE 1ST QUARTER
W3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , Y3 <ENTER>	GOTO BOX Y3
Y3	H3 <SYMBOL SHIFT> - W3 <ENTER>	INSERT FORMULA TO SUBTRACT TOTAL EXPENSES FROM TOTAL INCOME FOR JANUARY

STEPS TO CREATE A BLANK ...

continued page 10 ...

• HOME CASH FLOW •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
Y3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , Y3 <SYMBOL SHIFT> , Y4 <SYMBOL SHIFT> : Y6 <ENTER>	REPEAT FORMULA FOR FEBRUARY, MARCH AND THE 1ST QUARTER
Y3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C3 <ENTER>	GOTO BOX C3
C3	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

d. ILLUSTRATION OF COMPLETED BLANK HOME CASH FLOW MATRIX

Your blank Home Cash Flow matrix should look like the following illustration.

```
================================================
                      •   HOME CASH FLOW    •
================================================



            •   HOME CASH FLOW    •



      01      02      03      04      05      06


A  INCOME              JAN      FEB      MAR  1 QTR
B
C  SALARY                0        0        0      0
D  DIVIDEND              0        0        0      0
E  INTEREST              0        0        0      0
F  CAPITAL GAIN          0        0        0      0
G  OTHER                 0        0        0      0
H  TOTAL INCOME          0        0        0      0
I
J  EXPENSE
K
L  FOOD                  0        0        0      0
M  RENT                  0        0        0      0
N  ELECTRIC              0        0        0      0
O  FEDERAL TAX           0        0        0      0
P  STATE TAX             0        0        0      0
Q  LOCAL TAX             0        0        0      0
R  SALES TAX             0        0        0      0
S  MEDICAL               0        0        0      0
T  CLOTHING              0        0        0      0
U  ENTERTAINMENT         0        0        0      0
V  SAVINGS               0        0        0      0
W  TOTAL EXPENSE         0        0        0      0
X
Y  BALANCE               0        0        0      0



================================================
```

e. EXAMPLE OF HOW TO USE THE BLANK HOME CASH FLOW MATRIX

If you kept track of a hypothetical family's expenditures and income for a two-month period,the record might look like the following page.

Using this information input the data into your blank Home Cash Flow matrix for automatic calculations of net cash flow balances and totals for each item.

Naturally, you can use your own particular income and expense items once you know that the blank matrix is functioning properly.

● HOME CASH FLOW ●

INCOME	JAN	FEB
SALARY	$ 1,200	$ 1,200
DIVIDENDS	100	200
INTEREST	100	-
CAPITAL GAINS	-	-
OTHER INCOME	-	-
EXPENSES		
FOOD	300	200
RENT	350	350
ELECTRIC	50	50
FEDERAL TAX	400	400
STATE TAX	100	100
LOCAL TAX	50	50
SALES TAX	25	25
MEDICAL	45	-
CLOTHING	100	25
ENTERTAINMENT	100	25
SAVINGS	-	-

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK HOME CASH FLOW MATRIX

Type the following information into the blank Home Cash Flow matrix as follows.

STEPS FOR INPUTTING DATA INTO THE BLANK ... page 1 ...

● HOME CASH FLOW ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C3	1200 <ENTER> <CAPS SHIFT> ↓	INSERT SALARY FOR JANUARY
D3	100 <ENTER> <CAPS SHIFT> ↓	INSERT DIVIDEND FOR JANUARY
E3	100 <ENTER>	INSERT INTEREST FOR JANUARY
E3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , L3 <ENTER>	GOTO BOX L3
L3	300 <ENTER> <CAPS SHIFT> ↓	INSERT FOOD EXPENSE FOR JANUARY
M3	350 <ENTER> <CAPS SHIFT> ↓	INSERT RENT EXPENSE FOR JANUARY
N3	50 <ENTER> <CAPS SHIFT> ↓	INSERT ELECTRIC EXPENSES FOR JANUARY
O3	400 <ENTER> <CAPS SHIFT> ↓	INSERT FEDERAL TAX FOR JANUARY

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 2 ...

• HOME CASH FLOW •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
P3	100 <ENTER> <CAPS SHIFT> ↓	INSERT STATE TAX FOR JANUARY
Q3	50 <ENTER> <CAPS SHIFT> ↓	INSERT LOCAL TAX FOR JANUARY
R3	25 <ENTER> <CAPS SHIFT> ↓	INSERT SALES TAX FOR JANUARY
S3	45 <ENTER> <CAPS SHIFT> ↓	INSERT MEDICAL EXPENSE FOR JANUARY
T3	100 <ENTER> <CAPS SHIFT> ↓	INSERT CLOTHING EXPENSE FOR JANUARY
U3	100 <ENTER>	INSERT ENTERTAINMENT EXPENSE FOR JANUARY
U3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C4 <ENTER>	GOTO BOX C4

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 3 ...

• HOME CASH FLOW •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C4	1200 <ENTER> <CAPS SHIFT> ↓	INSERT SALARY FOR FEBRUARY
D4	200 <ENTER>	INSERT DIVIDEND FOR FEBRUARY
D4	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , L4 <ENTER>	GOTO BOX L4
L4	200 <ENTER> <CAPS SHIFT> ↓	INSERT FOOD EXPENSE FOR FEBRUARY
M4	350 <ENTER> <CAPS SHIFT> ↓	INSERT RENT EXPENSE FOR FEBRUARY
N4	50 <ENTER> <CAPS SHIFT> ↓	INSERT ELECTRIC EXPENSE FOR FEBRUARY
O4	400 <ENTER> <CAPS SHIFT> ↓	INSERT FEDERAL TAX FOR FEBRUARY
P4	100 <ENTER> <CAPS SHIFT> ↓	INSERT STATE TAX FOR FEBRUARY

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 4 ...

• HOME CASH FLOW •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
Q4	50 <ENTER> <CAPS SHIFT> ↓	INSERT LOCAL TAX FOR FEBRUARY
R4	15 <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT SALES TAX FOR FEBRUARY
T4	25 <ENTER> <CAPS SHIFT> ↓	INSERT CLOTHING EXPENSE FOR FEBRUARY
U4	25 <ENTER>	INSERT ENTERTAINMENT EXPENSE FOR FEBRUARY
U4	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , V3 <ENTER>	GOTO BOX V3
V3	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

g. ILLUSTRATION OF COMPLETED HOME CASH FLOW MATRIX

The following is what your completed Home Cash Flow matrix should look like.

• HOME CASH FLOW •

```
                 • HOME CASH FLOW •




       01        02        03        04        05        06

A   INCOME                JAN       FEB       MAR    1 QTR
B
C   SALARY               1200      1200         0     2400
D   DIVIDEND              100       200         0      300
E   INTEREST              100         0         0      100
F   CAPITAL GAIN            0         0         0        0
G   OTHER                   0         0         0        0
H   TOTAL INCOME         1400      1400         0     2800
I
J   EXPENSE
K
L   FOOD                  300       200         0      500
M   RENT                  350       350         0      700
N   ELECTRIC               50        50         0      100
O   FEDERAL TAX           400       400         0      800
P   STATE TAX             100       100         0      200
Q   LOCAL TAX              50        50         0      100
R   SALES TAX              25        15         0       40
S   MEDICAL                45         0         0       45
T   CLOTHING              100        25         0      125
U   ENTERTAINMENT         100        25         0      125
V   SAVINGS                 0         0         0        0
W   TOTAL EXPENSE        1520      1215         0     2735
X
Y   BALANCE              -120       185         0       65
```

MODERATELY COMPLEX MATRIX EXERCISE

PERSONAL NET WORTH MATRIX

a. OBJECTIVE 269

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c. ACTUAL STEP-BY-STEP 272
INSTRUCTIONS FOR
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PERSONAL NET WORTH
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MATRIX

g. ILLUSTRATION OF 291
COMPLETED
PERSONAL NET WORTH
MATRIX

MODERATELY COMPLEX MATRIX EXERCISE

PERSONAL NET WORTH MATRIX

a. OBJECTIVE

To create a Personal Net Worth matrix that will automatically calculate for you and your spouse a combined personal net worth statement or personal balance sheet.

The matrix will include the following seven asset items and five liability items.

● PERSONAL NET WORTH ●

ASSETS

1. ACCOUNTS RECEIVABLE
2. CASH AND BANK ACCOUNTS
3. STOCKS AND BONDS
4. INDIVIDUAL RETIREMENT ACCOUNT AND KEOGH PLAN
5. PERSONAL PROPERTY
6. REAL ESTATE
7. LIFE INSURANCE

LIABILITIES

1. ACCOUNTS PAYABLE
2. LOANS
3. MORTGAGE
4. TAXES
5. OTHER LIABILITIES

b. DOING IT BY HAND

In order to determine your Personal Net Worth by hand you must add up the total value of everything you own - your assets - and subtract everything you owe - your liabilities.

In addition, if your spouse has his or her own assets and liabilities,a separate analysis of assets and liabilities should also be calculated. Finally, combining your spouse's assets and liabilities with your own would reveal the total picture of Personal Net Worth.

By creating and saving a Personal Net Worth matrix you can quickly and easily take inventory of your financial health anytime you want. By using this matrix you eliminate all of the time consuming calculations and get error free final totals in a fraction of the time that it would take to compute by hand.

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK PERSONAL NET WORTH MATRIX

The following steps will create a Personal Net Worth matrix that will automatically calculate net worth for you and your spouse.

In order to create your blank Personal Net Worth matrix, type in the following information, being sure that your Caps Lock Key is on, so that your completed illustration will be in capital letters as shown in the book.

STEPS TO CREATE A BLANK ... page 1 ...

• PERSONAL NET WORTH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<CAPS SHIFT>	CAPITALIZE ALL
	<CAPS LOCK>	LETTERS
A1	<SYMBOL SHIFT> # F	SET ALL LABELS
	<SYMBOL SHIFT> , 1	TO THE LEFT IN
	<SYMBOL SHIFT> , L	COLUMN 1
	<ENTER>	
A1	<SYMBOL SHIFT> # F	SET ALL LABELS
	<SYMBOL SHIFT> , 2	TO THE LEFT IN
	<SYMBOL SHIFT> , L	COLUMN 2
	<ENTER>	
A1	<SYMBOL SHIFT> "	INSERT ASSETS
	ASSETS <ENTER>	
	<CAPS SHIFT> ->	
	<CAPS SHIFT> ->	
A3	<SYMBOL SHIFT> "	INSERT SELF
	SELF <ENTER>	
	<CAPS SHIFT> ->	

STEPS TO CREATE A BLANK ...

continued page 2 ...

• PERSONAL NET WORTH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A4	<SYMBOL SHIFT> " SPOUSE <ENTER> <CAPS SHIFT> ->	INSERT SPOUSE
A5	<SYMBOL SHIFT> " COMBND <ENTER>	INSERT COMBINED
A5	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C1 <ENTER>	GOTO BOX C1
C1	<SYMBOL SHIFT> " ACCOUNTS <SPACE BAR> REC <ENTER> <CAPS SHIFT> ↓	INSERT LABEL ACCOUNTS RECEIVABLE
D1	<SYMBOL SHIFT> " CASH <SYMBOL SHIFT> / BANK <ENTER> <CAPS SHIFT> ↓	INSERT LABEL CASH AND BANK

STEPS TO CREATE A BLANK ...

continued page 3 ...

• PERSONAL NET WORTH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
E1	<SYMBOL SHIFT> " STOCKS <SYMBOL SHIFT> / BONDS <ENTER> <CAPS SHIFT> ↓	INSERT LABELS STOCKS AND BONDS
F1	<SYMBOL SHIFT> " IRA <SYMBOL SHIFT> / KEOGH <ENTER> <CAPS SHIFT> ↓	INSERT LABELS IRA ACCOUNT AND/OR KEOGH ACCOUNT
G1	<SYMBOL SHIFT> " PERSONAL <SPACE BAR> PROP <ENTER> <CAPS SHIFT> ↓	INSERT LABEL PERSONAL PROPERTY
H1	<SYMBOL SHIFT> " REAL <SPACE BAR> ESTATE <ENTER> <CAPS SHIFT> ↓	INSERT LABEL REAL ESTATE

STEPS TO CREATE A BLANK ...

continued page 4 ...

● PERSONAL NET WORTH ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
I1	<SYMBOL SHIFT> " LIFE <SPACE BAR> INS <ENTER> <CAPS SHIFT> ↓	INSERT LABEL LIFE INSURANCE
J1	<SYMBOL SHIFT> " TOTAL <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT LABEL TOTAL
L1	<SYMBOL SHIFT> " LIABILITIES <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT LABEL LIABILITIES
N1	<SYMBOL SHIFT> " ACCOUNTS <SPACE BAR> PAY <ENTER> <CAPS SHIFT> ↓	INSERT LABEL ACCOUNTS PAYABLE

STEPS TO CREATE A BLANK ... continued page 5 ...

• PERSONAL NET WORTH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
O1	<SYMBOL SHIFT> " LOANS <ENTER> <CAPS SHIFT> ↓	INSERT LABEL LOANS
P1	<SYMBOL SHIFT> " MORTGAGE <ENTER> <CAPS SHIFT> ↓	INSERT LABEL MORTGAGE
Q1	<SYMBOL SHIFT> " TAXES <ENTER> <CAPS SHIFT> ↓	INSERT LABEL TAXES
R1	<SYMBOL SHIFT> " OTHER <ENTER> <CAPS SHIFT> ↓	INSERT LABEL OTHER
S1	<SYMBOL SHIFT> " TOTAL <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT LABEL TOTAL

STEPS TO CREATE A BLANK ...

continued page 7 ...

• PERSONAL NET WORTH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C3	0 <ENTER>	INSERT NUMBER ZERO
C3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C3 <SYMBOL SHIFT> , C3 <SYMBOL SHIFT> : I5 <ENTER>	REPEAT ZEROS IN COLUMNS 3,4 AND 5 DOWN TO ROW I
C3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C3 <SYMBOL SHIFT> , N3 <SYMBOL SHIFT> : R5 <ENTER>	REPEAT ZEROS IN COLUMNS 3,4 AND 5 FROM ROW N DOWN TO ROW R
C3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , J3 <ENTER>	GOTO BOX J3
J3	<SYMBOL SHIFT> & C3 <SYMBOL SHIFT> : I3 <ENTER>	INSERT FORMULA TO ADD ALL ASSETS IN COLUMN 3

STEPS TO CREATE A BLANK ...

continued page 8 ...

• PERSONAL NET WORTH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
J3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , J3 <SYMBOL SHIFT> , J4 <SYMBOL SHIFT> : J5 <ENTER>	REPEAT FORMULA TO ADD ASSETS IN COLUMNS 4 AND 5
J3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , S3 <ENTER>	GOTO BOX S3
S3	<SYMBOL SHIFT> & N3 <SYMBOL SHIFT> : R3 <ENTER>	INSERT FORMULA TO ADD ALL LIABILITIES IN COLUMN 3
S3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , S3 <SYMBOL SHIFT> , S4 <SYMBOL SHIFT> : S5 <ENTER>	REPEAT FORMULA TO ADD LIABILITIES IN COLUMNS 4 AND 5

STEPS TO CREATE A BLANK ...

continued page 9 ...

PERSONAL NET WORTH

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
S3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C5 <ENTER>	GOTO BOX C5
C5	<SYMBOL SHIFT> & C3 <SYMBOL SHIFT> : C4 <ENTER>	INSERT FORMULA TO ADD YOUR ASSETS TO YOUR SPOUSE'S ASSETS
C5	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C5 <SYMBOL SHIFT> , D5 <SYMBOL SHIFT> : I5 <ENTER>	REPEAT FORMULA TO ADD ALL YOUR ASSET ITEMS TO YOUR SPOUSE'S
C5	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , N5 <ENTER>	GOTO BOX N5
N5	<SYMBOL SHIFT> & N3 <SYMBOL SHIFT> : N4 <ENTER>	INSERT FORMULA TO ADD YOUR LIABILITIES TO YOUR SPOUSE'S

STEPS TO CREATE A BLANK ...

continued page 10 ...

• PERSONAL NET WORTH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
N5	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , N5 <SYMBOL SHIFT> , O5 <SYMBOL SHIFT> : R5 <ENTER>	REPEAT FORMULA TO ADD ALL YOUR LIABILITIES TO YOUR SPOUSE'S
N5	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , V5 <ENTER>	GOTO BOX V5
V5	J5 <SYMBOL SHIFT> - S5 <ENTER>	FORMULA SUBTRACT TOTAL LIABILITIES FROM TOTAL ASSETS
V5	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C3 <ENTER>	GOTO BOX C3
C3	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

d. ILLUSTRATION OF COMPLETED BLANK PERSONAL NET WORTH MATRIX

Your blank Personal Net Worth matrix should look like the following illustration.

• PERSONAL NET WORTH •

```
        •  PERSONAL NET WORTH  •




            01        02        03        04        05

   A        ASSETS                  SELF  SPOUSE  COMBND
   B
   C        ACCOUNTS REC               0       0       0
   D        CASH/BANK                  0       0       0
   E        STOCKS/BONDS               0       0       0
   F        IRA/KEOGH                  0       0       0
   G        PERSONAL PROP              0       0       0
   H        REAL ESTATE                0       0       0
   I        LIFE INS                   0       0       0
   J        TOTAL                      0       0       0
   K
   L        LIABILITIES
   M
   N        ACCOUNTS PAY               0       0       0
   O        LOANS                      0       0       0
   P        MORTGAGE                   0       0       0
   Q        TAXES                      0       0       0
   R        OTHER                      0       0       0
   S        TOTAL                      0       0       0
   T
   U        ASSETS-
   V        LIABILITIES = NET WORTH >                  0
```

e. EXAMPLE OF HOW TO USE THE BLANK PERSONAL NET WORTH MATRIX

To demonstrate the use of the blank Personal Net Worth matrix let us assume you and your spouse have the following assets and liabilities.

By inputting these assets and liabilities into your blank Personal Net Worth matrix you not only will automatically compute your total net worth, but also automatically compute each combined asset and liability.

PERSONAL NET WORTH

PERSONAL NET WORTH STATEMENT

ASSETS	SELF	SPOUSE
ACCOUNTS RECEIVABLE	$ 3,000.00	$ 1,500.00
CASH AND BANK ACCOUNTS	15,000.00	500.00
STOCKS AND BONDS	35,000.00	2,000.00
IRA AND KEOGH PLANS	7,000.00	8,500.00
PERSONAL PROPERTY	25,000.00	10,000.00
LIFE INSURANCE	5,000.00	
LIABILITIES		
ACCOUNTS PAYABLE	$ 2,000.00	
LOANS	3,200.00	
OTHER		$ 150.00

f. ACTUAL STEPS FOR INPUTTING ASSETS AND LIABILITIES INTO YOUR BLANK PERSONAL NET WORTH MATRIX

Type the following information into the blank Personal Net Worth matrix as follows.

STEPS FOR INPUTTING DATA INTO THE BLANK ... page 1 ...

• PERSONAL NET WORTH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C3	3000 <ENTER> <CAPS SHIFT> ↓	ENTER $3,000 SUM IN ACCOUNTS RECEIVABLE
D3	15000 <ENTER> <CAPS SHIFT> ↓	ENTER $15,000 SUM IN CASH IN BANK
E3	35000 <ENTER> <CAPS SHIFT> ↓	ENTER $35,000 SUM IN STOCKS AND BONDS
F3	7000 <ENTER> <CAPS SHIFT> ↓	ENTER $7,000 SUM IN IRA OR KEOGH ACCOUNT
G3	25000 <ENTER> <CAPS SHIFT> ↓	ENTER $25,000 SUM IN PERSONAL PROPERTY
	<CAPS SHIFT> ↓	
I3	5000 <ENTER>	ENTER $5,000 SUM IN LIFE INSURANCE
I3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , N3 <ENTER>	GOTO BOX N3

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 2 ...

• PERSONAL NET WORTH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
N3	2000 <ENTER> <CAPS SHIFT> ↓	ENTER $2,000 SUM IN ACCOUNTS PAYABLE
O3	3200 <ENTER>	ENTER $3,200 SUM IN LOAN PAYABLE
O3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C4 <ENTER>	GOTO BOX C4
C4	1500 <ENTER> <CAPS SHIFT> ↓	ENTER $1,500 SUM IN SPOUSE'S ACCOUNTS RECEIVABLE
D4	500 <ENTER> <CAPS SHIFT> ↓	ENTER $500 SUM IN SPOUSE'S CASH IN BANK
E4	2000 <ENTER> <CAPS SHIFT> ↓	ENTER $2,000 SUM IN SPOUSE'S STOCKS AND BONDS

STEPS FOR INPUTTING DATA INTO THE BLANK ...

continued page 3 ...

• PERSONAL NET WORTH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
F4	8500 <ENTER> <CAPS SHIFT> ↓	ENTER $8,500 SUM IN SPOUSE'S IRA OR KEOGH ACCOUNT
G4	10000 <ENTER>	ENTER $10,000 SUM IN SPOUSE'S PERSONAL PROPERTY
G4	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , R4 <ENTER>	GOTO BOX R4
R4	150 <ENTER>	ENTER $150 SUM IN SPOUSE'S OTHER LIABILITIES
R4	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

g. ILLUSTRATION OF COMPLETED PERSONAL NET WORTH MATRIX

The following is what your completed Personal Net Worth matrix should look like.

```
                    •   PERSONAL NET WORTH    •

            •   PERSONAL NET WORTH    •




          01       02       03       04       05
 A        ASSETS                    SELF  SPOUSE  COMBND
 B
 C        ACCOUNTS REC              3000    1500    4500
 D        CASH/BANK                15000     500   15500
 E        STOCKS/BONDS             35000    2000   37000
 F        IRA/KEOGH                 7000    8500   15500
 G        PERSONAL PROP            25000   10000   35000
 H        REAL ESTATE                  0       0       0
 I        LIFE INS                  5000       0    5000
 J        TOTAL                    90000   22500  112500
 K
 L        LIABILITIES
 M
 N        ACCOUNTS PAY              2000       0    2000
 O        LOANS                     3200       0    3200
 P        MORTGAGE                     0       0       0
 Q        TAXES                        0       0       0
 R        OTHER                        0     150     150
 S        TOTAL                     5200     150    5350
 T
 U        ASSETS-
 V        LIABILITIES = NET WORTH >           107150
```

• CHAPTER 4 ...

FIVE COMPLEX VU-CALC MATRIXES

- INDIVIDUAL RETIREMENT ACCOUNT ANALYSIS MATRIX .. 294
- THREE-DIMENSIONAL BAR GRAPH MATRIX 311
- TRAVEL EXPENSE VOUCHER MATRIX ..332
- STOCK PORTFOLIO MATRIX 364
- ELECTRIC BILL MATRIX 390

● COMPLEX ●

● MATRIX ●

● EXERCISE ●

INDIVIDUAL RETIREMENT ACCOUNT ANALYSIS MATRIX

a. OBJECTIVE 295

b. DOING IT BY HAND 296

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK IRA ANALYSIS MATRIX 298

d. ILLUSTRATION OF COMPLETED BLANK IRA ANALYSIS MATRIX 304

e. EXAMPLE OF HOW TO USE THE BLANK IRA ANALYSIS MATRIX 306

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK IRA ANALYSIS MATRIX 307

g. ILLUSTRATION OF COMPLETED IRA ANALYSIS MATRIX 309

• COMPLEX •

• MATRIX •

• EXERCISE •

• INDIVIDUAL RETIREMENT ACCOUNT •

• ANALYSIS MATRIX •

a. OBJECTIVE

To create an Individual Retirement Account Analysis matrix for twenty yearly contributions at a fixed interest rate that will automatically calculate the amount the account will be worth in twenty years.

b. DOING IT BY HAND

Determining the value of an Individual Retirement Account entails the following steps:

1. FIRST YEAR CONTRIBUTION
x Interest Rate
+ First Year Contribution
= First Year IRA Value

2. FIRST YEAR IRA VALUE
+ Second Year Contribution
x Interest Rate
+ First Year IRA Value
+ Second Year Contribution
= Second Year IRA Value

3. Repeating the calculations in step 2 above to the 20th year will yield the amount the IRA account will be worth at that time.

By creating an IRA Analysis matrix you will be able to calculate all the steps described above automatically and accurately.

By simply inputting the interest rate and the yearly contribution you will be able to determine what your individual IRA will be worth at the end of twenty years.

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK IRA ANALYSIS MATRIX

In order to create a blank IRA Analysis matrix that will automatically calculate the value of an IRA account after twenty yearly contributions at a fixed interest rate, type in the following information, being sure that your Caps Lock Key is on, so that your completed illustration will be in capital letters as shown in the book.

STEPS TO CREATE A BLANK ... page 1 ...

IRA ANALYSIS

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<CAPS SHIFT>	CAPITALIZE ALL
	<CAPS LOCK>	LETTERS
A1	<SYMBOL SHIFT> # F	FORMAT TO DOLLARS
	<SYMBOL SHIFT> , A	AND CENTS
	<SYMBOL SHIFT> ,	
	<SYMBOL SHIFT> $	
	<ENTER>	
A1	0 <ENTER>	INSERT NUMBER ZERO
	<CAPS SHIFT> ↓	
B1	0 <ENTER>	INSERT NUMBER ZERO
	<CAPS SHIFT> ↓	
C1	<SYMBOL SHIFT> (B1	INSERT FORMULA FIRST
	<SYMBOL SHIFT> * A1	CONTRIBUTION PLUS
	<SYMBOL SHIFT>)	FIRST YEAR INTEREST
	<SYMBOL SHIFT> + B1	
	<ENTER>	
	<CAPS SHIFT> ↓	

STEPS TO CREATE A BLANK ...

continued page 2 ...

• IRA ANALYSIS •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
D1	<SYMBOL SHIFT> (<SYMBOL SHIFT> (C1 <SYMBOL SHIFT> + <SYMBOL SHIFT> $ B1 <SYMBOL SHIFT>) <SYMBOL SHIFT> * <SYMBOL SHIFT> $ A1 <SYMBOL SHIFT>) <SYMBOL SHIFT> + <SYMBOL SHIFT> (C1 <SYMBOL SHIFT> + <SYMBOL SHIFT> $ B1 <SYMBOL SHIFT>) <ENTER>	INSERT FORMULA FIRST YEAR VALUE PLUS $2,000 CONTRIBUTION PLUS SECOND YEAR INTEREST
D1	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , D1 <SYMBOL SHIFT> , E1 <SYMBOL SHIFT> : V1 <ENTER>	REPEAT COMPOUND INTEREST FORMULA FOR TWENTY YEARS

STEPS TO CREATE A BLANK ...

continued page 3 ...

• IRA ANALYSIS •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
D1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , A2 <ENTER>	GOTO BOX A2
A2	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 2 <SYMBOL SHIFT> , G <SYMBOL SHIFT> , R <ENTER>	FORMAT COLUMN 2 TO THE RIGHT
A2	<SYMBOL SHIFT> " RATE <ENTER> <CAPS SHIFT> ↓	INSERT RATE
B2	<SYMBOL SHIFT> " CONTRIBUTION <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ->	INSERT CONTRIBUTION

STEPS TO CREATE A BLANK ...

continued page 4 ...

• IRA ANALYSIS •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C3	<SYMBOL SHIFT> " YR <SPACE BAR> VAL <ENTER>	INSERT LABEL YEAR VALUE
C3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C3 <SYMBOL SHIFT> , D3 <SYMBOL SHIFT> : V3 <ENTER>	REPEAT LABEL FOR EACH YEAR
C2	<CAPS SHIFT> <- 1 <ENTER>	INSERT NUMBER 1
D2	<CAPS SHIFT> ↓ 1 <SYMBOL SHIFT> + C2 <ENTER>	INSERT FORMULA TO ADD SUBSEQUENT YEARS

STEPS TO CREATE A BLANK ...

continued page 5 ...

IRA ANALYSIS

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
D2	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , D2 <SYMBOL SHIFT> , E2 <SYMBOL SHIFT> : V2 <ENTER>	REPEAT FORMULA FOR TWENTY YEARS
D2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , A1 <ENTER>	GOTO BOX A1
A1	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

d. ILLUSTRATION OF COMPLETED BLANK INDIVIDUAL RETIREMENT ACCOUNT ANALYSIS MATRIX

Your blank IRA Analysis matrix should look like the following illustration.

• IRA ANALYSIS •

```
            • IRA ANALYSIS •



           01          02          03

A        0.00  RATE
B        0.00 CONTRIBUTION
C        0.00          1 YR VAL
D        0.00          2 YR VAL
E        0.00          3 YR VAL
F        0.00          4 YR VAL
G        0.00          5 YR VAL
H        0.00          6 YR VAL
I        0.00          7 YR VAL
J        0.00          8 YR VAL
K        0.00          9 YR VAL
L        0.00         10 YR VAL
M        0.00         11 YR VAL
N        0.00         12 YR VAL
O        0.00         13 YR VAL
P        0.00         14 YR VAL
Q        0.00         15 YR VAL
R        0.00         16 YR VAL
S        0.00         17 YR VAL
T        0.00         18 YR VAL
U        0.00         19 YR VAL
V        0.00         20 YR VAL
```

e. EXAMPLE OF HOW TO USE THE BLANK INDIVIDUAL RETIREMENT ACCOUNT ANALYSIS MATRIX

To illustrate the use of the blank IRA Analysis matrix assume you will contribute $2,000.00 a year for twenty years at an interest rate of 12% a year.

By simply inputting the interest rate and each yearly contribution into the blank IRA Analysis matrix you will be able to compute the IRA value quickly and accurately. In addition, you will have the flexibility to compare the results of various interest rates as well as contributions.

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK INDIVIDUAL RETIREMENT ACCOUNT ANALYSIS MATRIX

Type the following information into the blank IRA Analysis matrix.

STEPS FOR INPUTTING DATA INTO THE BLANK ... page 1 ...

• IRA ANALYSIS •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	0 <SYMBOL SHIFT> .12 <ENTER>	INSERT INTEREST RATE (12%)
	<CAPS SHIFT> ↓	
B1	2000 <ENTER>	INSERT YEARLY CONTRIBUTION ($2,000)
B1	<SYMBOL SHIFT> # C <ENTER>	CALCULATE YEARLY VALUES OF IRA CONTRIBUTIONS ($2,000) AT 12%

g. ILLUSTRATION OF COMPLETED INDIVIDUAL RETIREMENT ACCOUNT ANALYSIS MATRIX

This is what your completed Individual Retirement Account Analysis matrix should look like.

• IRA ANALYSIS •

```
• IRA ANALYSIS •



            01          02          03

A         0.12   RATE
B      2000.00  CONTRIBUTION
C      2240.00           1  YR  VAL
D      4748.00           2  YR  VAL
E      7558.65           3  YR  VAL
F      10705.6           4  YR  VAL
G      14230.2           5  YR  VAL
H      18177.8           6  YR  VAL
I      22599.1           7  YR  VAL
J      27550.9           8  YR  VAL
K      33097.0           9  YR  VAL
L      39308.6          10  YR  VAL
M      46265.6          11  YR  VAL
N      54057.4          12  YR  VAL
O      62784.2          13  YR  VAL
P      72558.3          14  YR  VAL
Q      83505.2          15  YR  VAL
R      95765.8          16  YR  VAL
S      109497.          17  YR  VAL
T      124876.          18  YR  VAL
U      142101.          19  YR  VAL
V      161393.          20  YR  VAL
```

COMPLEX MATRIX EXERCISE

THREE-DIMENSIONAL BAR GRAPH MATRIX

a. OBJECTIVE 312

b. DOING IT BY HAND 312

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK (BASE) THREE-DIMENSIONAL BAR GRAPH MATRIX 314

d. ILLUSTRATION OF COMPLETED BLANK THREE-DIMENSIONAL BAR GRAPH MATRIX 319

e. EXAMPLE OF HOW TO USE THE BLANK THREE-DIMENSIONAL BAR GRAPH MATRIX 321

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK THREE-DIMENSIONAL BAR GRAPH MATRIX 322

g. ILLUSTRATION OF COMPLETED THREE-DIMENSIONAL BAR GRAPH MATRIX 330

• COMPLEX •

• MATRIX •

• EXERCISE •

• THREE-DIMENSIONAL BAR GRAPH MATRIX •

a. OBJECTIVE

To create a Three-Dimensional Bar Graph matrix with a vertical axis, a horizontal axis and a third dimensional axis to graphically display sales in thousands of dollars for three months.

b. DOING IT BY HAND

Creating a Three-Dimensional Bar Graph by hand for the purpose specified above would require the following steps:

1. Drawing the vertical axis.
2. Drawing the horizontal axis.
3. Drawing the third dimensional axis.
4. Sub-dividing the horizontal axis into three sub-divisions to accommodate three three-dimensional bars.
5. Inserting the labels, such as months, quarters and sales.

Creating three-dimensional bar graphs by professional charting services is both costly and time consuming. In addition, if revisions are required, all the original steps have to be repeated in order to display new or additional data.

By creating a Three-Dimensional Bar Graph matrix as specified below, you will have the basis from which you will be able to add new data and labels without repeating all of the original steps.

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK (BASE) THREE-DIMENSIONAL BAR GRAPH MATRIX

The following steps will create a Three-Dimensional Bar Graph Base matrix for three months (one quarter) which can accommodate your data display requirements.

In order to create this Three-Dimensional Bar Graph Base matrix, type in the following information, being sure that your Caps Lock Key is on, so that your completed illustration will be in capital letters as shown in the book.

STEPS TO CREATE A BLANK ... page 1 ...

● THREE-DIMENSIONAL BAR GRAPH ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<SYMBOL SHIFT> # G	GOTO BOX L2
	<SYMBOL SHIFT> , L2	
	<ENTER>	
L2	<SYMBOL SHIFT> "	INSERT BOTTOM OF BAR
	<SYMBOL SHIFT> !	
	<SYMBOL SHIFT> -	
	<SYMBOL SHIFT> -	
	<SYMBOL SHIFT> -	
	<SYMBOL SHIFT> !	
	<SYMBOL SHIFT> /	
	<ENTER>	
	<CAPS SHIFT> ↑	
K2	<SYMBOL SHIFT> "	INSERT BAR
	<SYMBOL SHIFT> !	
	<SYMBOL SHIFT> *	
	<SYMBOL SHIFT> *	
	<SYMBOL SHIFT> *	
	<SYMBOL SHIFT> !	
	<SYMBOL SHIFT> !	
	<ENTER>	

STEPS TO CREATE A BLANK ... continued page 2 ...

• THREE-DIMENSIONAL BAR GRAPH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
K2	<SYMBOL SHIFT> # R	REPEAT BAR IN
	<SYMBOL SHIFT> , K2	BOXES I2 AND J2
	<SYMBOL SHIFT> , I2	
	<SYMBOL SHIFT> : J2	
	<ENTER>	
K2	<SYMBOL SHIFT> # G	GOTO BOX H2
	<SYMBOL SHIFT> , H2	
	<ENTER>	
H2	<SYMBOL SHIFT> "	INSERT TOP OF BAR
	<SYMBOL SHIFT> !	
	<SYMBOL SHIFT> -	
	<SYMBOL SHIFT> -	
	<SYMBOL SHIFT> -	
	<SYMBOL SHIFT> !	
	<SYMBOL SHIFT> !	
	<ENTER>	
	<CAPS SHIFT> ↑	

STEPS TO CREATE A BLANK ... continued page 3 ...

● THREE-DIMENSIONAL BAR GRAPH ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
G2	<SYMBOL SHIFT> " <SPACE BAR> <SYMBOL SHIFT> / <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> / <SYMBOL SHIFT> ! <ENTER>	INSERT TOP OF BAR
G2	<SYMBOL SHIFT> # T <SYMBOL SHIFT> , 2 <SYMBOL SHIFT> , 4 <ENTER>	TRANSFER BAR IN COLUMN 4

STEPS TO CREATE A BLANK ...

continued page 4 ...

• THREE-DIMENSIONAL BAR GRAPH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
G2	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , G2 <SYMBOL SHIFT> , H3 <ENTER>	REPEAT TOP IN COLUMN 3
	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , H2 <SYMBOL SHIFT> , I3 <ENTER>	REPEAT TOP IN COLUMN 3
	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , I2 <SYMBOL SHIFT> , J3 <SYMBOL SHIFT> : K3 <ENTER>	REPEAT BAR IN COLUMN 3
	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , L2 <SYMBOL SHIFT> , L3 <ENTER>	REPEAT BOTTOM IN COLUMN 3
G2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , A1 <ENTER>	GOTO BOX A1

d. ILLUSTRATION OF COMPLETED BLANK THREE-DIMENSIONAL BAR GRAPH MATRIX

Your blank Three-Dimensional Bar Graph matrix should look like the following illustration.

```
╔════════════════════════════════════════════════════════════════════════════╗
║                                                                            ║
║                                        ●  THREE-DIMENSIONAL BAR GRAPH   ●  ║
╠════════════════════════════════════════════════════════════════════════════╣
║                                                                            ║
║                                                                            ║
║                                                                            ║
║                                                                            ║
║                                                                            ║
║                                                                            ║
║                             01     02     03     04                        ║
║                                                                            ║
║                    A                                                       ║
║                    B                                                       ║
║                    C                                                       ║
║                    D                                                       ║
║                    E                                                       ║
║                    F                                                       ║
║                    G             /--/!         /--/!                       ║
║                    H            !---!!  /--/! !---!!                       ║
║                    I            !***!! !---!! !***!!                       ║
║                    J            !***!! !***!! !***!!                       ║
║                    K            !***!! !***!! !***!!                       ║
║                    L            !---!/ !---!/ !---!/                       ║
║                                                                            ║
║                                                                            ║
║                                                                            ║
║                                                                            ║
╚════════════════════════════════════════════════════════════════════════════╝
```

e. EXAMPLE OF HOW TO USE THE BLANK THREE-DIMENSIONAL BAR GRAPH MATRIX

To illustrate the use of the blank Three-Dimensional Bar Graph matrix you can add to the base to display the following information:

FIRST QUARTER SALES	MONTH
$40,000	JANUARY
$60,000	FEBRUARY
$80,000	MARCH

Inputting the above shown information into the base of the Three-Dimensional Bar Graph matrix will create a Three-Dimensional Bar Graph that will display sales for three months with the dollar volume illustrated by three-dimensional bars.

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK THREE-DIMENSIONAL BAR GRAPH MATRIX

Type the following information into the blank Three-Dimensional Bar Graph matrix as follows.

STEPS FOR INPUTTING DATA INTO THE BLANK ... page 1 ...

• THREE-DIMENSIONAL BAR GRAPH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , G2 <SYMBOL SHIFT> , F2 <ENTER>	REPEAT TOP OF BAR UP ONE ROW
A1	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , H2 <SYMBOL SHIFT> , G2 <ENTER>	REPEAT NEXT ROW TOP OF BAR UP ONE ROW
A1	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , I2 <SYMBOL SHIFT> , H2 <ENTER>	FILL IN BAR TO $40,000 LEVEL IN COLUMN 2
A1	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , I2 <SYMBOL SHIFT> , F3 <SYMBOL SHIFT> : I3 <ENTER>	FILL IN BAR TO $60,000 LEVEL IN COLUMN 3

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 2 ...

• THREE-DIMENSIONAL BAR GRAPH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , F2 <SYMBOL SHIFT> , D3 <ENTER>	REPEAT TOP OF BAR IN COLUMN 3
A1	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , G2 <SYMBOL SHIFT> , E3 <ENTER>	REPEAT NEXT ROW IN COLUMN 3
A1	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , I2 <SYMBOL SHIFT> , D4 <SYMBOL SHIFT> : H4 <ENTER>	FILL IN BAR TO $80,000 LEVEL IN COLUMN 4

STEPS FOR INPUTTING DATA INTO THE BLANK ...

continued page 3 ...

• THREE-DIMENSIONAL BAR GRAPH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , F2 <SYMBOL SHIFT> , B4 <ENTER>	REPEAT TOP OF BAR IN COLUMN 4
A1	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , G2 <SYMBOL SHIFT> , C4 <ENTER>	REPEAT NEXT ROW IN COLUMN 4
A1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C1 <ENTER>	GOTO BOX C1
C1	80000 <ENTER> <CAPS SHIFT> ->	INSERT $80,000

STEPS FOR INPUTTING DATA INTO THE BLANK ...

continued page 4 ...

• THREE-DIMENSIONAL BAR GRAPH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C2	<SYMBOL SHIFT> "	INSERT LINE
	<SYMBOL SHIFT> -	WITH ARROW HEAD
	<SYMBOL SHIFT> -	
	<SYMBOL SHIFT> -	
	<SYMBOL SHIFT> -	
	<SYMBOL SHIFT> -	
	<SYMBOL SHIFT> -	
	<SYMBOL SHIFT> -	
	<SYMBOL SHIFT> -	
	<SYMBOL SHIFT> -	
	<SYMBOL SHIFT> -	
	<SYMBOL SHIFT> -	
	<SYMBOL SHIFT> -	
	<SYMBOL SHIFT> -	
	<SYMBOL SHIFT> -	
	<SYMBOL SHIFT> >	
	<ENTER>	

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 5 ...

THREE-DIMENSIONAL BAR GRAPH

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , E1 <ENTER>	GOTO BOX E1
E1	60000 <ENTER> <CAPS SHIFT> ->	INSERT $60,000
E2	<SYMBOL SHIFT> " <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> - <SYMBOL SHIFT> > <ENTER>	INSERT LINE WITH ARROW HEAD
E2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , G1 <ENTER>	GOTO BOX G1

STEPS FOR INPUTTING DATA IN TO THE BLANK ...

continued page 6 ...

• THREE-DIMENSIONAL BAR GRAPH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
G1	40000 <ENTER>	INSERT $40,000
G1	<SYMBOL SHIFT> # G	GOTO BOX N2
	<SYMBOL SHIFT> , N2	
	<ENTER>	
N2	<SYMBOL SHIFT> "	INSERT JANUARY
	<SPACE BAR> JAN	
	<SPACE BAR>	
	<SPACE BAR>	
	<SYMBOL SHIFT> -	
	<ENTER>	
	<CAPS SHIFT> ->	
N3	<SYMBOL SHIFT> "	INSERT FEBRUARY
	<SPACE BAR> FEB	
	<SPACE BAR>	
	<SPACE BAR>	
	<SYMBOL SHIFT> -	
	<ENTER>	
	<CAPS SHIFT> ->	

STEPS FOR INPUTTING DATA INTO THE BLANK ...

continued page 7 ...

• THREE-DIMENSIONAL BAR GRAPH •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
N4	<SYMBOL SHIFT> " <SPACE BAR> MAR <SPACE BAR> <SPACE BAR> <SYMBOL SHIFT> - <ENTER>	INSERT MARCH
N4	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , Q3 <ENTER>	GOTO BOX Q3
Q3	<SYMBOL SHIFT> " 1ST <SPACE BAR> QTR <ENTER> <CAPS SHIFT> ↓	INSERT 1ST QUARTER
R3	<SYMBOL SHIFT> " <SYMBOL SHIFT> - SALES <SYMBOL SHIFT> - <ENTER>	INSERT SALES
R3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , A1 <ENTER>	GOTO BOX A1

g. ILLUSTRATION OF COMPLETED THREE-DIMENSIONAL BAR GRAPH MATRIX

This is what your completed Three-Dimensional Bar Graph matrix should look like.

```
                    •   THREE-DIMENSIONAL BAR GRAPH   •

         01      02      03      04

A
B                              /--/!
C       80000----------------->!---!!
D                      /--/!  !***!!
E       60000-------->!---!!  !***!!
F              /--/!  !***!!  !***!!
G       40000 !---!!  !***!!  !***!!
H             !***!!  !***!!  !***!!
I             !***!!  !***!!  !***!!
J             !***!!  !***!!  !***!!
K             !***!!  !***!!  !***!!
L             !---!/  !---!/  !---!/
M
N              JAN    FEB     MAR
O
P
Q                     1ST QTR
R                     -SALES-
S
```

COMPLEX

MATRIX

EXERCISE

TRAVEL EXPENSE VOUCHER MATRIX

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TRAVEL EXPENSE
VOUCHER
MATRIX

• COMPLEX •

• MATRIX •

• EXERCISE •

• TRAVEL EXPENSE VOUCHER MATRIX •

a. OBJECTIVE

To create a Travel Expense Voucher matrix that will automatically calculate total expenditures for each of the items illustrated for a five-day period, Monday to Friday.

In addition to the above the matrix will provide for automatic calculations that will subtract cash advances from the total expenditures to provide the balance due.

The matrix will also add any transportation costs paid directly by the company, so that the company's total costs will be automatically computed for the following items.

```
                                                  •  TRAVEL EXPENSE VOUCHER  •

                        •  TRAVEL EXPENSE VOUCHER  •

ITEM                         MON      TUE      WED      THU      FRI      TOTAL

OWN CAR/MILEAGE ALLOWANCE
PARKING/TOLLS
AUTO RENTAL
TAXIS/CARFARE
AIR PAID BY EMPLOYEE
HOTEL/LODGING
BREAKFAST
LUNCH
DINNER
ENTERTAINMENT
GRATUITIES/TIPS
TELEPHONE
LAUNDRY
OTHER
```

b. DOING IT BY HAND

In order to calculate by hand what the Travel Expense Voucher will automatically calculate you would have to do the following steps:

1. Add each day's expenditures for each item.
2. Add each item's expenditures for five days.
3. Add the total expenditures.
4. Subtract the cash advances from the total expenditures to arrive at the balance due either the employee or the company.
5. Add any other transportation costs paid directly by the company to compute the actual total trip expense to the company.

You can create a Travel Expense Voucher matrix that will automatically calculate all of the above steps by following the steps described in the next part.

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK TRAVEL EXPENSE VOUCHER MATRIX

The following steps will create a Travel Expense Voucher matrix that will automatically calculate total expenditures for 14 items for a five day period.

In addition, daily totals as well as grand total company expenditures will be provided, taking into account cash advances and transportation costs paid directly by the company.

In order to create this Travel Expense Voucher matrix, type in the following information, being sure that your Caps Lock Key is on, so that your completed illustration will be in capital letters as shown in the book.

STEPS TO CREATE A BLANK ... page 1 ...

• TRAVEL EXPENSE VOUCHER •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<CAPS SHIFT> <CAPS LOCK>	CAPITALIZE ALL LETTERS
A1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , A <SYMBOL SHIFT> , <SYMBOL SHIFT> $ <ENTER>	FORMAT ALL NUMBERS TO DOLLARS AND CENTS
A1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 1 <SYMBOL SHIFT> , L <ENTER>	FORMAT COLUMN 1 LABELS TO THE LEFT
A1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 2 <SYMBOL SHIFT> , L <ENTER>	FORMAT COLUMN 2 LABELS TO THE LEFT

STEPS TO CREATE A BLANK ...

continued page 2 ...

• TRAVEL EXPENSE VOUCHER •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<SYMBOL SHIFT> " ITEM <ENTER> <CAPS SHIFT> -> <CAPS SHIFT> ->	INSERT ITEM
A3	<SYMBOL SHIFT> " MON <ENTER> <CAPS SHIFT> ->	INSERT MONDAY
A4	<SYMBOL SHIFT> " TUE <ENTER> <CAPS SHIFT> ->	INSERT TUESDAY
A5	<SYMBOL SHIFT> " WED <ENTER> <CAPS SHIFT> ->	INSERT WEDNESDAY
A6	<SYMBOL SHIFT> " THU <ENTER> <CAPS SHIFT> ->	INSERT THURSDAY
A7	<SYMBOL SHIFT> " FRI <ENTER> <CAPS SHIFT> ->	INSERT FRIDAY

STEPS TO CREATE A BLANK ... continued page 3 ...

• TRAVEL EXPENSE VOUCHER •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A8	<SYMBOL SHIFT> " TOTAL <ENTER>	INSERT TOTAL
A8	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C1 <ENTER>	GOTO BOX C1
C1	<SYMBOL SHIFT> " OWN <SPACE BAR> CAR <SPACE BAR> MILES <ENTER> <CAPS SHIFT> ↓	INSERT OWN CAR MILEAGE ALLOWANCE
D1	<SYMBOL SHIFT> " PARKING <SYMBOL SHIFT> / TOLLS <ENTER> <CAPS SHIFT> ↓	INSERT PARKING TOLLS
E1	<SYMBOL SHIFT> " AUTO <SPACE BAR> RENTAL <ENTER> <CAPS SHIFT> ↓	INSERT AUTO RENTALS

STEPS TO CREATE A BLANK ...

continued page 4 ...

• TRAVEL EXPENSE VOUCHER •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
F1	<SYMBOL SHIFT> " TAXIS <SYMBOL SHIFT> / CARFARE <ENTER> <CAPS SHIFT> ↓	INSERT TAXI/ CARFARE
G1	<SYMBOL SHIFT> " AIR <SPACE BAR> PD <SPACE BAR> BY <SPACE BAR> EMPL <CAPS SHIFT> ↓ <ENTER>	INSERT AIR FARE PAID BY EMPLOYEE
H1	<SYMBOL SHIFT> " HOTEL <SYMBOL SHIFT> / LODGING <ENTER> <CAPS SHIFT> ↓	INSERT HOTEL/ LODGING
I1	<SYMBOL SHIFT> " BREAKFAST <ENTER> <CAPS SHIFT> ↓	INSERT BREAKFAST
J1	<SYMBOL SHIFT> " LUNCH <ENTER> <CAPS SHIFT> ↓	INSERT LUNCH

STEPS TO CREATE A BLANK ...

continued page 5 ...

• TRAVEL EXPENSE VOUCHER •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
K1	<SYMBOL SHIFT> " DINNER <ENTER> <CAPS SHIFT> ↓	INSERT DINNER
L1	<SYMBOL SHIFT> " ENTERTAINMENT <ENTER> <CAPS SHIFT> ↓	INSERT ENTERTAINMENT
M1	<SYMBOL SHIFT> " GRATUITIES <SYMBOL SHIFT> / TIP <ENTER> <CAPS SHIFT> ↓	INSERT GRATUITIES /TIPS
N1	<SYMBOL SHIFT> " TELEPHONE <ENTER> <CAPS SHIFT> ↓	INSERT TELEPHONE
O1	<SYMBOL SHIFT> " LAUNDRY <ENTER> <CAPS SHIFT> ↓	INSERT LAUNDRY
P1	<SYMBOL SHIFT> " OTHER <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT OTHER

STEPS TO CREATE A BLANK ...

continued page 6 ...

• TRAVEL EXPENSE VOUCHER •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
R1	<SYMBOL SHIFT> " TOTAL <ENTER>	INSERT TOTAL
R1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C3 <ENTER>	GOTO BOX C3
C3	0 <ENTER>	INSERT NUMBER ZERO
C3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C3 <SYMBOL SHIFT> , C3 <SYMBOL SHIFT> : P8 <ENTER>	REPEAT ZEROS IN COLUMNS 3 TO 8 DOWN TO COLUMN P
C3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , R3 <ENTER>	GOTO BOX R3
R3	<SYMBOL SHIFT> & C3 <SYMBOL SHIFT> : P3 <ENTER>	SUM COLUMN 3 (MONDAY EXPENSES)

STEPS TO CREATE A BLANK ... continued page 7 ...

TRAVEL EXPENSE VOUCHER

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
R3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , R3 <SYMBOL SHIFT> , R4 <SYMBOL SHIFT> : R8 <ENTER>	REPEAT SUMS OF EACH DAY TUESDAY TO FRIDAY
R3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C8 <ENTER>	GOTO BOX C8
C8	<SYMBOL SHIFT> & C3 <SYMBOL SHIFT> : C7 <ENTER>	SUM OWN CAR MILEAGE ALLOWANCE
C8	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , C8 <SYMBOL SHIFT> , D8 <SYMBOL SHIFT> : P8 <ENTER>	REPEAT SUM OF EACH OTHER ITEM
C8	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , U5 <ENTER>	GOTO BOX U5

STEPS TO CREATE A BLANK ...

continued page 8 ...

● TRAVEL EXPENSE VOUCHER ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
U5	<SYMBOL SHIFT> " TOTAL <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <ENTER> <CAPS SHIFT> ↓	INSERT TOTAL AND DOTTED LINE

STEPS TO CREATE A BLANK ...

continued page 9 ...

• TRAVEL EXPENSE VOUCHER •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
V5	<SYMBOL SHIFT> " LESS <SPACE BAR> CASH <SPACE BAR> ADVANCE <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT LESS CASH ALLOWANCE AND ADVANCE PLUS DOTTED LINE

STEPS TO CREATE A BLANK ...

continued page 10 ...

• TRAVEL EXPENSE VOUCHER •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
X5	<SYMBOL SHIFT> " BALANCE <SPACE BAR> DUE <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <SYMBOL SHIFT> . <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT BALANCE DUE AND DOTTED LINE

STEPS TO CREATE A BLANK ...

continued page 11 ...

• TRAVEL EXPENSE VOUCHER •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
Z5	<SYMBOL SHIFT> " TRANSPORT <SPACE BAR> PAID <SPACE BAR> BY <SPACE BAR> CO <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT TRANSPORTATION PAID BY COMPANY
AB5	<SYMBOL SHIFT> " <SPACE BAR> <SPACE BAR> <SPACE BAR> TOTAL <SPACE BAR> TRIP <SPACE BAR> EXPENSE <ENTER>	INSERT TOTAL TRIP EXPENSE
AB5	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , U8 <ENTER>	GOTO BOX U8

STEPS TO CREATE A BLANK ...

continued page 12 ...

• TRAVEL EXPENSE VOUCHER •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
U8	R8 <ENTER> <CAPS SHIFT> ↓	REPEAT TOTAL IN BOX R8 IN U8
V8	0 <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT NUMBER ZERO
X8	U8 <SYMBOL SHIFT> - V8 <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT FORMULA FOR TOTAL (EXPENSE) MINUS CASH ADVANCE
Z8	0 <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT NUMBER ZERO
AB8	R8 <SYMBOL SHIFT> + Z8 <ENTER>	SUM OF TOTAL EXPENSE PLUS COST OF TRANSPORTATION PAID BY COMPANY
AB8	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C3 <ENTER>	GOTO BOX C3
C3	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

d. ILLUSTRATION OF COMPLETED BLANK TRAVEL EXPENSE VOUCHER MATRIX

Your blank Travel Expense Voucher matrix should look like the following illustration.

```
        •   TRAVEL EXPENSE VOUCHER   •



   •   TRAVEL EXPENSE VOUCHER   •


page 1 ...


            01        02        03        04

   A    ITEM                   MON       TUE
   B
   C    OWN CAR MILES         0.00      0.00
   D    PARKING/TOLLS         0.00      0.00
   E    AUTO RENTAL           0.00      0.00
   F    TAXIS/CARFARE         0.00      0.00
   G    AIR PD BY EMPL        0.00      0.00
   H    HOTEL/LODGING         0.00      0.00
   I    BREAKFAST             0.00      0.00
   J    LUNCH                 0.00      0.00
   K    DINNER                0.00      0.00
   L    ENTERTAINMENT         0.00      0.00
   M    GRATUITIES/TIP        0.00      0.00
   N    TELEPHONE             0.00      0.00
   O    LAUNDRY               0.00      0.00
   P    OTHER                 0.00      0.00
   Q
   R    TOTAL                 0.00      0.00
   S
   T
   U
   V
   W
   X
   Y
   Z
  AA
  AB
```

```
#==========================================#
||                                        ||
||       •   TRAVEL EXPENSE VOUCHER   •   ||
||                                        ||
#==========================================#
||                                        ||
||                                        ||
||   •   TRAVEL EXPENSE VOUCHER   •       ||
||                                        ||
||  continued page 2 ...                  ||
||                                        ||
||                                        ||
||        05      06      07      08      ||
||                                        ||
||        WED     THU     FRI   TOTAL     ||
||                                        ||
||       0.00    0.00    0.00    0.00     ||
||       0.00    0.00    0.00    0.00     ||
||       0.00    0.00    0.00    0.00     ||
||       0.00    0.00    0.00    0.00     ||
||       0.00    0.00    0.00    0.00     ||
||       0.00    0.00    0.00    0.00     ||
||       0.00    0.00    0.00    0.00     ||
||       0.00    0.00    0.00    0.00     ||
||       0.00    0.00    0.00    0.00     ||
||       0.00    0.00    0.00    0.00     ||
||       0.00    0.00    0.00    0.00     ||
||       0.00    0.00    0.00    0.00     ||
||       0.00    0.00    0.00    0.00     ||
||       0.00    0.00    0.00    0.00     ||
||                                        ||
||       0.00    0.00    0.00    0.00     ||
||                                        ||
||                                        ||
||    TOTAL................      0.00     ||
||    LESS CASH ADVANCE....      0.00     ||
||                                        ||
||    BALANCE DUE..........      0.00     ||
||                                        ||
||    TRANSPORT PAID BY CO.      0.00     ||
||                                        ||
||       TOTAL TRIP EXPENSE      0.00     ||
||                                        ||
==========================================
```

e. EXAMPLE OF HOW TO USE THE BLANK TRAVEL EXPENSE VOUCHER MATRIX

If an employee of a company had to record his or her expenses for a four-day business trip, the Travel Expense Voucher would probably look similar to the list shown on the next page.

In addition assume the employee received a $500.00 cash advance and the company paid directly $750.00 for air transportation costs for this trip.

By inputting the above described expenditures into the blank Travel Expense Voucher matrix you will be provided with automatic calculations as well as a record of the trip to be saved or printed on hard copy if you have a printer.

● TRAVEL EXPENSE VOUCHER ●

● TRAVEL EXPENSE VOUCHER ●

ITEM	MON	TUE	WED	THU	FRI	TOTAL
OWN CAR/MILEAGE ALLOWANCE						
PARKING/TOLLS	$6.50	$6.50		$5.00		
AUTO RENTAL	25.00	35.00		15.00		
TAXIS/CARFARE	15.00	5.00	$25.00	7.50		
AIR PAID BY EMPLOYEE						
HOTEL/LODGING	79.00	79.00	79.00			
BREAKFAST	4.50	2.75	5.00	4.00		
LUNCH	9.75	7.00	10.50			
DINNER	25.00	23.00				
ENTERTAINMENT			50.00			
GRATUITIES/TIPS	2.00					
TELEPHONE	5.00	4.00				
LAUNDRY						
OTHER						

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK TRAVEL EXPENSE VOUCHER MATRIX

Type the following information into the blank Travel Expense Voucher matrix as follows.

STEPS FOR INPUTTING DATA INTO THE BLANK ... page 1 ...

• TRAVEL EXPENSE VOUCHER •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C3	<CAPS SHIFT> ↓	GOTO BOX D3
D3	6 <SYMBOL SHIFT> .	INSERT PARKING COST
	50 <ENTER>	
	<CAPS SHIFT> ↓	
E3	25 <ENTER>	INSERT AUTO RENTAL
	<CAPS SHIFT> ↓	
F3	15 <ENTER>	INSERT CARFARE
	<CAPS SHIFT> ↓	
	<CAPS SHIFT> ↓	
H3	79 <ENTER>	INSERT LODGING COST
	<CAPS SHIFT> ↓	
I3	4 <SYMBOL SHIFT> .	INSERT BREAKFAST COST
	5 <ENTER>	
	<CAPS SHIFT> ↓	
J3	9 <SYMBOL SHIFT> .	INSERT LUNCH COST
	75 <ENTER>	
	<CAPS SHIFT> ↓	

STEPS FOR INPUTTING DATA INTO THE BLANK ...   continued page 2 ...

• TRAVEL EXPENSE VOUCHER •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
K3	25 <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT DINNER COST
M3	2 <ENTER> <CAPS SHIFT> ↓	INSERT TIP
N3	5 <ENTER>	INSERT TELEPHONE COST
N3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , D4 <ENTER>	GOTO BOX D4
D4	6 <SYMBOL SHIFT> . 5 <ENTER> <CAPS SHIFT> ↓	INSERT PARKING COST
E4	35 <ENTER> <CAPS SHIFT> ↓	INSERT AUTO RENTAL
F4	5 <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT CARFARE

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 3 ...

• TRAVEL EXPENSE VOUCHER •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
H4	79 <ENTER>	INSERT LODGING COST
	<CAPS SHIFT> ↓	
I4	2 <SYMBOL SHIFT> .	INSERT BREAKFAST COST
	75 <ENTER>	
	<CAPS SHIFT> ↓	
J4	7 <ENTER>	INSERT LUNCH COST
	<CAPS SHIFT> ↓	
K4	23 <ENTER>	INSERT DINNER COST
K4	<SYMBOL SHIFT> # G	GOTO BOX O4
	<SYMBOL SHIFT> , O4	
	<ENTER>	
O4	4 <ENTER>	INSERT LAUNDRY COST
O4	<SYMBOL SHIFT> # G	GOTO BOX F5
	<SYMBOL SHIFT> , F5	
	<ENTER>	
F5	25 <ENTER>	INSERT CARFARE
	<CAPS SHIFT> ↓	
	<CAPS SHIFT> ↓	

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 4 ...

TRAVEL EXPENSE VOUCHER

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
H5	79 <ENTER>	INSERT LODGING COST
	<CAPS SHIFT> ↓	
I5	5 <ENTER>	INSERT BREAKFAST COST
	<CAPS SHIFT> ↓	
J5	10 <SYMBOL SHIFT> .	INSERT LUNCH COST
	5 <ENTER>	
	<CAPS SHIFT> ↓	
	<CAPS SHIFT> ↓	
L5	50 <ENTER>	INSERT ENTERTAINMENT
L5	<SYMBOL SHIFT> # G	GOTO BOX D6
	<SYMBOL SHIFT> , D6	
	<ENTER>	
D6	5 <ENTER>	INSERT PARKING COST
	<CAPS SHIFT> ↓	
E6	15 <ENTER>	INSERT AUTO RENTAL
	<CAPS SHIFT> ↓	
F6	7 <SYMBOL SHIFT> .	INSERT TAXI COST
	5 <ENTER>	

STEPS FOR INPUTTING DATA INTO THE BLANK ...

continued page 5 ...

● TRAVEL EXPENSE VOUCHER ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
F6	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , I6 <ENTER>	GOTO BOX I6
I6	4 <ENTER>	INSERT BREAKFAST COST
I6	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , V8 <ENTER>	GOTO BOX V8
V8	500 <ENTER>	INSERT CASH ADVANCE
V8	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , Z8 <ENTER>	GOTO BOX Z8
Z8	750 <ENTER>	INSERT TRANSPORTATION PAID BY THE COMPANY
Z8	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , A1 <ENTER>	GOTO BOX A1
A1	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

g. ILLUSTRATION OF COMPLETED TRAVEL EXPENSE VOUCHER MATRIX

This is what your completed Travel Expense Voucher matrix should look like.

```
      •  TRAVEL EXPENSE VOUCHER  •

  •  TRAVEL EXPENSE VOUCHER  •

page 1 ...

           01        02        03        04

   A   ITEM                   MON       TUE
   B
   C   OWN CAR MILES          0.00      0.00
   D   PARKING/TOLLS          6.50      6.50
   E   AUTO RENTAL           25.00     35.00
   F   TAXIS/CARFARE         15.00      5.00
   G   AIR PD BY EMPL         0.00      0.00
   H   HOTEL/LODGING         79.00     79.00
   I   BREAKFAST              4.50      2.75
   J   LUNCH                  9.75      7.00
   K   DINNER                25.00     23.00
   L   ENTERTAINMENT          0.00      0.00
   M   GRATUITIES/TIP         2.00      0.00
   N   TELEPHONE              5.00      0.00
   O   LAUNDRY                0.00      4.00
   P   OTHER                  0.00      0.00
   Q
   R   TOTAL                171.75    162.25
   S
   T
   U
   V
   W
   X
   Y
   Z
  AA
  AB
```

```
        •   TRAVEL EXPENSE VOUCHER   •


    •   TRAVEL EXPENSE VOUCHER   •

continued page 2 ...


        05      06      07      08

        WED     THU     FRI  TOTAL

       0.00    0.00    0.00   0.00
       0.00    5.00    0.00  18.00
       0.00   15.00    0.00  75.00
      25.00    7.50    0.00  52.50
       0.00    0.00    0.00   0.00
      79.00    0.00    0.00 237.00
       5.00    4.00    0.00  16.25
      10.50    0.00    0.00  27.25
       0.00    0.00    0.00  48.00
      50.00    0.00    0.00  50.00
       0.00    0.00    0.00   2.00
       0.00    0.00    0.00   5.00
       0.00    0.00    0.00   4.00
       0.00    0.00    0.00   0.00

     169.50   31.50    0.00 535.00


    TOTAL................ 535.00
    LESS CASH ADVANCE.... 500.00

    BALANCE DUE..........  35.00

    TRANSPORT PAID BY CO. 750.00

       TOTAL TRIP EXPENSE1285.00
```

• COMPLEX •

• MATRIX •

• EXERCISE •

• STOCK PORTFOLIO MATRIX •

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f. ACTUAL STEPS FOR INPUTTING STOCK VALUES INTO THE BLANK STOCK PORTFOLIO MATRIX 385

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• COMPLEX •

• MATRIX •

• EXERCISE •

• STOCK PORTFOLIO MATRIX •

a. OBJECTIVE

To create a Stock Portfolio matrix for five stocks that will provide for each stock the three-year stock value growth rate, average value and projected value.

In addition, the matrix will indicate the percentage of total portfolio value for each stock and the total portfolio value for each year.

b. DOING IT BY HAND

Maintaining by hand a Stock Portfolio such as the one described above would require a multitude of calculations.

Each of the required hand calculations is described as follows.

• STOCK PORTFOLIO •

1. To determine the three-year stock value growth rate for each stock would require the following calculations:

$$\text{SECOND YEAR VALUE} - \text{FIRST YEAR VALUE} = \text{FIRST REMAINDER}$$

$$\text{FIRST YEAR REMAINDER} \div \text{FIRST YEAR VALUE} = \text{FIRST YEAR GROWTH RATE}$$

$$\text{THIRD YEAR VALUE} - \text{SECOND YEAR VALUE} = \text{SECOND YEAR REMAINDER}$$

$$\text{SECOND YEAR REMAINDER} \div \text{SECOND YEAR VALUE} = \text{SECOND YEAR GROWTH RATE}$$

$$\text{STOCK VALUE GROWTH RATE} = \frac{\text{FIRST YEAR GROWTH RATE} + \text{SECOND YEAR GROWTH RATE}}{2}$$

2. To calculate the average value for each stock over a three-year period would require the following steps:

    a. Add the first year's value, second year's value and third year's value.

    b. Divide the sum of the three values by three.

3. To calculate the projected value of each stock requires the following steps:

    a. THIRD YEAR'S STOCK VALUE x STOCK VALUE GROWTH RATE

    b. Add the product of the step immediately above to the third year's stock value to arrive at the projected stock value.

4. To determine the percentage of total portfolio value for each stock simply requires dividing the value of each stock by the total portfolio value for all five stocks.

By creating a Stock Portfolio matrix you will be able to calculate all of the steps described above automatically, quickly and accurately.

By simply inputting the stock values you will easily be able to determine which ones are growing in value and which ones are not.

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK STOCK PORTFOLIO MATRIX

The following steps will create a blank Stock Portfolio matrix that will automatically calculate stock value growth rate, average value and percentage of total portfolio values for five stocks.

In order to create this blank matrix, type in the following information, being sure that your Caps Lock Key is on, so that your completed illustration will be in capital letters as shown in the book.

STEPS TO CREATE A BLANK ... page 1 ...

• STOCK PORTFOLIO •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<CAPS SHIFT> <CAPS LOCK>	CAPITALIZE ALL LETTERS
A1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 5 <SYMBOL SHIFT> , <SYMBOL SHIFT> $ <ENTER>	FORMAT SET FOR COLUMN 5 TO DOLLARS AND CENTS
A1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 1 <SYMBOL SHIFT> , L <ENTER> <CAPS SHIFT> -> <CAPS SHIFT> ->	FORMAT 1ST COLUMN LABELS TO THE LEFT
A3	<SYMBOL SHIFT> " <SYMBOL SHIFT> - VALUE <SYMBOL SHIFT> - <ENTER>	INSERT VALUE
A3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , C1 <ENTER>	GOTO BOX C1

STEPS TO CREATE A BLANK ...

continued page 2 ...

● STOCK PORTFOLIO ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C1	<SYMBOL SHIFT> " STOCKS <ENTER> <CAPS SHIFT> ->	INSERT STOCKS
C2	<SYMBOL SHIFT> " 1981 <ENTER> <CAPS SHIFT> ->	INSERT 1981
C3	<SYMBOL SHIFT> " 1982 <ENTER> <CAPS SHIFT> ->	INSERT 1982
C4	<SYMBOL SHIFT> " 1983 <ENTER> <CAPS SHIFT> -> <CAPS SHIFT> ↑	INSERT 1983
B5	<SYMBOL SHIFT> " VALUE <ENTER> <CAPS SHIFT> ↓	INSERT VALUE
C5	<SYMBOL SHIFT> " GROWTH <ENTER> <CAPS SHIFT> ->	INSERT GROWTH

STEPS TO CREATE A BLANK ... continued page 3 ...

• STOCK PORTFOLIO •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
C6	<SYMBOL SHIFT> " AVG <ENTER> <CAPS SHIFT> -> <CAPS SHIFT> ↑	INSERT AVERAGE
B7	<SYMBOL SHIFT> " PRJCT <ENTER> <CAPS SHIFT> ↓	INSERT PROJECTED
C7	<SYMBOL SHIFT> " 1984 <ENTER>	INSERT 1984
C7	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , E1 <ENTER>	GOTO BOX E1
E1	<SYMBOL SHIFT> " STOCK <SPACE BAR> A <ENTER> <CAPS SHIFT> ↓	INSERT STOCK A

STEPS TO CREATE A BLANK ...

continued page 4 ...

• STOCK PORTFOLIO •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
F1	<SYMBOL SHIFT> " STOCK <SPACE BAR> B <ENTER> <CAPS SHIFT> ↓	INSERT STOCK B
G1	<SYMBOL SHIFT> " STOCK <SPACE BAR> C <ENTER> <CAPS SHIFT> ↓	INSERT STOCK C
H1	<SYMBOL SHIFT> " STOCK <SPACE BAR> D <ENTER> <CAPS SHIFT> ↓	INSERT STOCK D
I1	<SYMBOL SHIFT> " STOCK <SPACE BAR> E <ENTER> <CAPS SHIFT> ↓	INSERT STOCK E
J1	<SYMBOL SHIFT> " TOTAL <ENTER>	INSERT TOTAL

STEPS TO CREATE A BLANK ...

continued page 5 ...

• STOCK PORTFOLIO •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
J1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , L1 <ENTER>	GOTO BOX L1
L1	<SYMBOL SHIFT> # T <SYMBOL SHIFT> , E <SYMBOL SHIFT> , N <ENTER>	TRANSFER STOCK LABEL IN ROW E TO ROW N
L1	<SYMBOL SHIFT> # T <SYMBOL SHIFT> , F <SYMBOL SHIFT> , O <ENTER>	TRANSFER STOCK LABEL IN ROW F TO ROW O
L1	<SYMBOL SHIFT> # T <SYMBOL SHIFT> , G <SYMBOL SHIFT> , P <ENTER>	TRANSFER STOCK LABEL IN ROW G TO ROW P
L1	<SYMBOL SHIFT> # T <SYMBOL SHIFT> , H <SYMBOL SHIFT> , Q <ENTER>	TRANSFER STOCK LABEL IN ROW H TO ROW Q

STEPS TO CREATE A BLANK ...

continued page 6 ...

• STOCK PORTFOLIO •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
L1	<SYMBOL SHIFT> # T <SYMBOL SHIFT> , I <SYMBOL SHIFT> , R <ENTER> <CAPS SHIFT> -> <CAPS SHIFT> ->	TRANSFER STOCK LABEL IN ROW I TO ROW R
L3	<SYMBOL SHIFT> " PERCENT <SPACE BAR> OF <SPACE BAR> TOTAL <ENTER>	INSERT PERCENT OF TOTAL
L3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , E2 <ENTER>	GOTO BOX E2
E2	1 <ENTER>	INSERT NUMBER 1 AS A DUMMY VARIABLE
E2	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , E2 <SYMBOL SHIFT> , E2 <SYMBOL SHIFT> : I4 <ENTER>	REPEAT DUMMY VARIABLE IN COLUMNS 2,3 AND 4 DOWN TO ROW I

STEPS TO CREATE A BLANK ...

continued page 7 ...

• STOCK PORTFOLIO •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
E2	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , E2 <SYMBOL SHIFT> , N2 <SYMBOL SHIFT> : R4 <ENTER>	REPEAT DUMMY VARIABLE IN COLUMNS 2,3 AND 4 DOWN TO ROW R
E2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , J2 <ENTER>	GOTO BOX J2
J2	<SYMBOL SHIFT> & E2 <SYMBOL SHIFT> : I2 <ENTER>	FORMULA ADD COLUMN 2 TO TOTAL PORTFOLIO IN 1981
J2	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , J2 <SYMBOL SHIFT> , J3 <SYMBOL SHIFT> : J4 <ENTER>	REPEAT FORMULA FOR 1982 AND 1983
J2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , E5 <ENTER>	GOTO BOX E5

STEPS TO CREATE A BLANK ...

continued page 8 ...

• STOCK PORTFOLIO •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
E5	<SYMBOL SHIFT> (<SYMBOL SHIFT> (E3 <SYMBOL SHIFT> - E2 <SYMBOL SHIFT>) <SYMBOL SHIFT> / E2 <SYMBOL SHIFT> + <SYMBOL SHIFT> (E4 <SYMBOL SHIFT> - E3 <SYMBOL SHIFT>) <SYMBOL SHIFT> / E3 <SYMBOL SHIFT>) <SYMBOL SHIFT> / 2 <SYMBOL SHIFT> * 100 <ENTER>	FORMULA FOR STOCK VALUE GROWTH 1981, 1982 AND 1983 FOR STOCK A
E5	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , E5 <SYMBOL SHIFT> , F5 <SYMBOL SHIFT> : J5 <ENTER> <CAPS SHIFT> ->	REPEAT FORMULA IN ROWS F TO J

STEPS TO CREATE A BLANK ...

continued page 9 ...

• STOCK PORTFOLIO •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
E6	<SYMBOL SHIFT> & E2 <SYMBOL SHIFT> : E4 <SYMBOL SHIFT> / 3 <ENTER>	FORMULA FOR AVERAGE VALUE OF STOCK A FOR 1981, 1982 AND 1983
E6	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , E6 <SYMBOL SHIFT> , F6 <SYMBOL SHIFT> : J6 <ENTER> <CAPS SHIFT> ->	REPEAT FORMULA IN ROWS F TO J
E7	E4 <SYMBOL SHIFT> * <SYMBOL SHIFT> (E5 <SYMBOL SHIFT> / 100 <SYMBOL SHIFT>) <SYMBOL SHIFT> + E4 <ENTER>	FORMULA FOR PROJECTED VALUE OF STOCK A IN 1984 BASED ON GROWTH VALUE

STEPS TO CREATE A BLANK ...

continued page 10 ...

● STOCK PORTFOLIO ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
E7	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , E7 <SYMBOL SHIFT> , F7 <SYMBOL SHIFT> : J7 <ENTER>	REPEAT FORMULA IN ROWS F TO J
E7	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , N2 <ENTER>	GOTO BOX N2
N2	E2 <SYMBOL SHIFT> / <SYMBOL SHIFT> $ J2 <SYMBOL SHIFT> * 100 <ENTER>	FORMULA FOR PERCENTAGE OF TOTAL FOR PORTFOLIO STOCK A FOR 1981 KEEPING TOTAL CONSTANT
N2	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , N2 <SYMBOL SHIFT> , O2 <SYMBOL SHIFT> : R2 <ENTER> <CAPS SHIFT> ->	REPEAT FORMULA IN ROWS O TO R KEEPING TOTAL CONSTANT

STEPS TO CREATE A BLANK ...

continued page 11 ...

STOCK PORTFOLIO

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
N3	E3 <SYMBOL SHIFT> / <SYMBOL SHIFT> $ J3 <SYMBOL SHIFT> * 100 <ENTER>	FORMULA FOR PERCENTAGE OF TOTAL FOR PORTFOLIO STOCK A FOR 1982
N3	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , N3 <SYMBOL SHIFT> , O3 <SYMBOL SHIFT> : R3 <ENTER> <CAPS SHIFT> ->	REPEAT FORMULA IN ROWS O TO R KEEPING THE TOTAL CONSTANT
N4	E4 <SYMBOL SHIFT> / <SYMBOL SHIFT> $ J4 <SYMBOL SHIFT> * 100 <ENTER>	FORMULA FOR PERCENTAGE OF TOTAL FOR PORTFOLIO STOCK A FOR 1983

STEPS TO CREATE A BLANK ...

continued page 12 ...

• STOCK PORTFOLIO •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
N4	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , N4 <SYMBOL SHIFT> , O4 <SYMBOL SHIFT> : R4 <ENTER>	REPEAT FORMULA IN ROWS O TO R KEEPING THE TOTAL CONSTANT
N4	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , E2 <ENTER>	GOTO BOX E2
E2	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

d. ILLUSTRATION OF COMPLETED BLANK STOCK PORTFOLIO MATRIX

Your blank Stock Portfolio matrix should look like the following.

```
                                                   ●  STOCK PORTFOLIO  ●

          01       02       03       04       05       06       07

A                        -VALUE-
B                                            VALUE             PRJCT
C   STOCKS       1981     1982     1983   GROWTH      AVG      1984
D
E   STOCK A         1        1        1     0.00        1         1
F   STOCK B         1        1        1     0.00        1         1
G   STOCK C         1        1        1     0.00        1         1
H   STOCK D         1        1        1     0.00        1         1
I   STOCK E         1        1        1     0.00        1         1
J   TOTAL           5        5        5     0.00        5         5
K
L                         PERCENT OF TOTAL
M
N   STOCK A        20       20       20
O   STOCK B        20       20       20
P   STOCK C        20       20       20
Q   STOCK D        20       20       20
R   STOCK E        20       20       20
```

e. EXAMPLE OF HOW TO USE THE BLANK STOCK PORTFOLIO MATRIX

To illustrate the use of the blank Stock Portfolio matrix, a hypothetical portfolio over a three-year period is provided in the chart below for inputting into the blank matrix:

	VALUE		
STOCK	1981	1982	1983
A	$4700	$5200	$5500
B	$4900	$5400	$6000
C	$2500	$2000	$1500
D	$1500	$3000	$5000
E	$ 450	$1000	$ 500

Inputting the above described stock information into the matrix will demonstrate the speed, accuracy and versatility of the Stock Portfolio matrix.

f. ACTUAL STEPS FOR INPUTTING STOCK VALUES INTO THE BLANK STOCK PORTFOLIO MATRIX

Type the following information into the blank Stock Portfolio matrix as follows.

STEPS FOR INPUTTING DATA INTO THE BLANK ... page 1 ...

● STOCK PORTFOLIO ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
E2	4700 <ENTER> <CAPS SHIFT> ↓	INSERT VALUE OF STOCK A IN 1981
F2	4900 <ENTER> <CAPS SHIFT> ↓	INSERT VALUE OF STOCK B IN 1981
G2	2500 <ENTER> <CAPS SHIFT> ↓	INSERT VALUE OF STOCK C IN 1981
H2	1500 <ENTER> <CAPS SHIFT> ↓	INSERT VALUE OF STOCK D IN 1981
I2	450 <ENTER>	INSERT VALUE OF STOCK E IN 1981
I2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , E3 <ENTER>	GOTO BOX E3
E3	5200 <ENTER> <CAPS SHIFT> ↓	INSERT VALUE OF STOCK A IN 1982
F3	5400 <ENTER> <CAPS SHIFT> ↓	INSERT VALUE OF STOCK B IN 1982
G3	2000 <ENTER> <CAPS SHIFT> ↓	INSERT VALUE OF STOCK C IN 1982

STEPS FOR INPUTTING DATA INTO THE BLANK ...

continued page 2 ...

• STOCK PORTFOLIO •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
H3	3000 <ENTER> <CAPS SHIFT> ↓	INSERT VALUE OF STOCK D IN 1982
I3	1000 <ENTER>	INSERT VALUE OF STOCK E IN 1982
I3	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , E4 <ENTER>	GOTO BOX E4
E4	5500 <ENTER> <CAPS SHIFT> ↓	INSERT VALUE OF STOCK A IN 1983
F4	6000 <ENTER> <CAPS SHIFT> ↓	INSERT VALUE OF STOCK B IN 1983
G4	1500 <ENTER> <CAPS SHIFT> ↓	INSERT VALUE OF STOCK C IN 1983
H4	5000 <ENTER> <CAPS SHIFT> ↓	INSERT VALUE OF STOCK D IN 1983
I4	500 <ENTER>	INSERT VALUE OF STOCK E IN 1983
I4	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

g. ILLUSTRATION OF COMPLETED STOCK PORTFOLIO MATRIX

Your completed Stock Portfolio matrix should look like the following illustration.

```
=======================================================================
                                                ●   STOCK PORTFOLIO  ●
=======================================================================

              01      02      03      04      05      06      07

     A                      -VALUE-
     B                                       VALUE           PRJCT
     C   STOCKS        1981    1982    1983 GROWTH     AVG    1984
     D
     E   STOCK A       4700    5200    5500   8.20    5133    5951
     F   STOCK B       4900    5400    6000  10.65    5433    6639
     G   STOCK C       2500    2000    1500 -22.50    2000    1162
     H   STOCK D       1500    3000    5000  83.33    3166    9166
     I   STOCK E        450    1000     500  36.11     650     680
     J   TOTAL        14050   16600   18500  14.79   16383   21236
     K
     L                      PERCENT OF TOTAL
     M
     N   STOCK A         33      31      29
     O   STOCK B         34      32      32
     P   STOCK C         17      12       8
     Q   STOCK D         10      18      27
     R   STOCK E          3       6       2

=======================================================================
```

• COMPLEX •

• MATRIX •

• EXERCISE •

• ELECTRIC BILL MATRIX •

a. OBJECTIVE 391

b. DOING IT BY HAND 392

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK ELECTRIC BILL MATRIX 397

d. ILLUSTRATION OF COMPLETED BLANK ELECTRIC BILL MATRIX 413

e. EXAMPLE OF HOW TO USE THE BLANK ELECTRIC BILL MATRIX 416

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK ELECTRIC BILL MATRIX 418

g. ILLUSTRATION OF COMPLETED ELECTRIC BILL MATRIX 423

● COMPLEX ●

● MATRIX ●

● EXERCISE ●

● ELECTRIC BILL MATRIX ●

a. OBJECTIVE

To create an Electric Bill matrix for your house or apartment that will automatically compute total monthly kilowatt hours (KHW) and the total monthly Electric Bill, as well as the monthly cost of each appliance.

b. DOING IT BY HAND

In order to determine monthly kilowatt hours and your monthly Electric Bill cost by hand, you would have to use the following formulas for each appliance used.

$$\underline{\text{MONTHLY KWH}} = \frac{\text{WATTS x HRS USED}}{1000} \text{ x } 30$$

$$\underline{\text{MONTHLY COST}} = \underline{\text{RATE x MONTHLY KWH}}$$

The steps to compute the entire Electric Bill by hand would entail the following:

• ELECTRIC BILL •

1. Identify and list all of the electric appliances in the residence within three main categories, consisting of lighting and large and small appliances.

2. Identify or estimate the power that is needed by each appliance, usually designated as watts. You can usually find the number of watts by looking at the bulb or the nameplate on the appliance.

3. Determine the average number of hours each appliance is used daily.

4. Determine from your Electric Bill or your Electric Utility Company the rate per kilowatt hour for your area.

   In New York City the rate as 1983 began was 15.2¢ per KWH in summer and 14.4¢ in winter.

5. Apply to the formula above the rates, the watts for each appliance and the hours used daily.

6. Add for each appliance the kilowatt hours and cost, to ascertain the total monthly KWHs and the total cost.

The illustration below lists the appliances and the operating watts that may be found in a small house or apartment.

I. LIGHT BULBS	WATTS (all bulbs in room)
LIVING ROOM	200
BEDROOM	200
BATHROOM	150
KITCHEN	150

II. LARGE APPLIANCES	WATTS (Standard)
REFRIGERATOR	200
WASHING MACHINE	130
DRYER	3,000
RADIO	20
COLOR TV	250
B/W TV	150
DISHWASHER	750
AIR CONDITIONER	1,100

III. SMALL APPLIANCES	WATTS (estimated)
ELECTRIC SHAVER	15
HAIR DRYER	600
TOASTER	1,100
IRON	1,100
ELECTRIC CLOCK	2.5
BROILER	1,140
VACUUM	630

To create a blank Electric Bill matrix for the information illustrated above, follow the steps outlined below.

c. ACTUAL STEP-BY-STEP INSTRUCTIONS FOR CREATING A BLANK ELECTRIC BILL MATRIX

The following steps will create an Electric Bill matrix that will automatically compute monthly kilowatt hours as well as your monthly Electric Bill.

In order to create this matrix,type in the following information, being sure that your Caps Lock Key is on, so that your completed illustration will be in capital letters as shown in the book.

STEPS TO CREATE A BLANK ... page 1 ...

● ELECTRIC BILL ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A1	<CAPS SHIFT> <CAPS LOCK>	CAPITALIZE ALL LETTERS
A1	<CAPS SHIFT> ↓	GOTO BOX B1
B1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , A <SYMBOL SHIFT> , <SYMBOL SHIFT> $ <ENTER>	FORMAT TO DOLLARS AND CENTS
B1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 1 <SYMBOL SHIFT> , L <ENTER>	FORMAT COLUMN 1 TO THE LEFT
B1	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 2 <SYMBOL SHIFT> , L <ENTER>	FORMAT COLUMN 2 TO THE LEFT

STEPS TO CREATE A BLANK ...

continued page 2 ...

• ELECTRIC BILL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
B1	<SYMBOL SHIFT> " APPL <ENTER> <CAPS SHIFT> ↓	INSERT APPLIANCE
C1	<SYMBOL SHIFT> " LIGHTS <ENTER>	INSERT LIGHTS
C1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , H1 <ENTER>	GOTO BOX H1
H1	<SYMBOL SHIFT> " LARGE <ENTER> <CAPS SHIFT> ↓	INSERT LARGE
I1	<SYMBOL SHIFT> " APPL <ENTER>	INSERT APPLIANCE
I1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , P1 <ENTER>	GOTO BOX P1

STEPS TO CREATE A BLANK ...

continued page 3 ...

● ELECTRIC BILL ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
P1	<SYMBOL SHIFT> " SMALL <ENTER> <CAPS SHIFT> ↓	INSERT SMALL
Q1	<SYMBOL SHIFT> " APPL <ENTER>	INSERT APPLIANCE
Q1	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , D2 <ENTER>	GOTO BOX D2
D2	<SYMBOL SHIFT> " LIVING <SPACE BAR> ROOM <ENTER> <CAPS SHIFT> ↓	INSERT LIVING ROOM
E2	<SYMBOL SHIFT> " BEDROOM <ENTER> <CAPS SHIFT> ↓	INSERT BEDROOM
F2	<SYMBOL SHIFT> " BATHROOM <ENTER> <CAPS SHIFT> ↓	INSERT BATHROOM

STEPS TO CREATE A BLANK ...

continued page 4 ...

● ELECTRIC BILL ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
G2	<SYMBOL SHIFT> " KITCHEN <ENTER> <CAPS SHIFT> ↓	INSERT KITCHEN
H2	<SYMBOL SHIFT> " REFRIGERATOR <ENTER> <CAPS SHIFT> ↓	INSERT REFRIGERATOR
I2	<SYMBOL SHIFT> " WASHING <SPACE BAR> MACH <ENTER> <CAPS SHIFT> ↓	INSERT WASHING MACHINE
J2	<SYMBOL SHIFT> " DRYER <ENTER> <CAPS SHIFT> ↓	INSERT DRYER
K2	<SYMBOL SHIFT> " RADIO <ENTER> <CAPS SHIFT> ↓	INSERT RADIO

STEPS TO CREATE A BLANK ...

continued page 5 ...

• ELECTRIC BILL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
L2	<SYMBOL SHIFT> " COLOR <SPACE BAR> TV <ENTER> <CAPS SHIFT> ↓	INSERT COLOR TELEVISION
M2	<SYMBOL SHIFT> " BW <SPACE BAR> TV <ENTER> <CAPS SHIFT> ↓	INSERT BLACK AND WHITE TELEVISION
N2	<SYMBOL SHIFT> " DISHWASHER <ENTER> <CAPS SHIFT> ↓	INSERT DISHWASHER
O2	<SYMBOL SHIFT> " AIR <SPACE BAR> COND <ENTER> <CAPS SHIFT> ↓	INSERT AIR-CONDITIONER
P2	<SYMBOL SHIFT> " ELECTRIC <SPACE BAR> SHAV <ENTER> <CAPS SHIFT> ↓	INSERT ELECTRIC SHAVER

STEPS TO CREATE A BLANK ...

continued page 6 ...

• ELECTRIC BILL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
Q2	<SYMBOL SHIFT> " HAIR <SPACE BAR> DRYER <ENTER> <CAPS SHIFT> ↓	INSERT HAIR DRYER
R2	<SYMBOL SHIFT> " TOASTER <ENTER> <CAPS SHIFT> ↓	INSERT TOASTER
S2	<SYMBOL SHIFT> " IRON <ENTER> <CAPS SHIFT> ↓	INSERT IRON
T2	<SYMBOL SHIFT> " ELECTRIC <SPACE BAR> CLK <ENTER> <CAPS SHIFT> ↓	INSERT ELECTRIC CLOCK
U2	<SYMBOL SHIFT> " BROILER <ENTER> <CAPS SHIFT> ↓	INSERT BROILER

STEPS TO CREATE A BLANK ...

continued page 7 ...

● ELECTRIC BILL ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
V2	<SYMBOL SHIFT> " VACUUM <ENTER> <CAPS SHIFT> ↓	INSERT VACUUM
W2	<SYMBOL SHIFT> " TOTALS <ENTER>	INSERT TOTALS
W2	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , A4 <ENTER>	GOTO BOX A4
A4	<SYMBOL SHIFT> " OPER <ENTER> <CAPS SHIFT> ->	INSERT OPERATING
A5	<SYMBOL SHIFT> " DAILY <ENTER> <CAPS SHIFT> ->	INSERT DAILY
A6	<SYMBOL SHIFT> " MONTLY <ENTER> <CAPS SHIFT> -> <CAPS SHIFT> ->	INSERT MONTHLY

STEPS TO CREATE A BLANK ...

continued page 8 ...

● ELECTRIC BILL ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
A8	<SYMBOL SHIFT> " MONTLY <ENTER>	INSERT MONTHLY
A8	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , B4 <ENTER>	GOTO BOX B4
B4	<SYMBOL SHIFT> " WATTS <ENTER> <CAPS SHIFT> ->	INSERT WATTS
B5	<SYMBOL SHIFT> " HOURS <ENTER> <CAPS SHIFT> ->	INSERT HOURS
B6	<SYMBOL SHIFT> " KWH <ENTER> <CAPS SHIFT> ->	INSERT KWH
B7	<SYMBOL SHIFT> " RATE <ENTER> <CAPS SHIFT> ->	INSERT RATE

STEPS TO CREATE A BLANK ...

continued page 9 ...

● ELECTRIC BILL ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
B8	<SYMBOL SHIFT> " COST <SYMBOL SHIFT> $ <ENTER>	INSERT COST ($)
B8	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , D4 <ENTER>	GOTO BOX D4
D4	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 4 <SYMBOL SHIFT> , G <ENTER>	FORMAT COLUMN 4 TO GENERAL
D4	200 <ENTER> <CAPS SHIFT> ↓	INSERT LIVING ROOM BULBS MULTIPLIED BY WATTS (200)
E4	200 <ENTER> <CAPS SHIFT> ↓	INSERT BEDROOM BULBS MULTIPLIED BY WATTS (200)

STEPS TO CREATE A BLANK ...

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• ELECTRIC BILL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
F4	150 <ENTER> <CAPS SHIFT> ↓	INSERT BATHROOM BULBS MULTIPLIED BY WATTS (150)
G4	150 <ENTER> <CAPS SHIFT> ↓	INSERT KITCHEN BULBS MULTIPLIED BY WATTS (150)
H4	200 <ENTER> <CAPS SHIFT> ↓	INSERT REFRIGERATOR WATTS (200)
I4	130 <ENTER> <CAPS SHIFT> ↓	INSERT WASHING MACHINE WATTS (130)
J4	3000 <ENTER> <CAPS SHIFT> ↓	INSERT DRYER WATTS (3000)
K4	20 <ENTER> <CAPS SHIFT> ↓	INSERT RADIO WATTS (20)
L4	250 <ENTER> <CAPS SHIFT> ↓	INSERT COLOR TV WATTS (250)
M4	150 <ENTER> <CAPS SHIFT> ↓	INSERT BLACK & WHITE TV WATTS (150)

STEPS TO CREATE A BLANK ...

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• ELECTRIC BILL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
N4	750 <ENTER> <CAPS SHIFT> ↓	INSERT DISHWASHER WATTS (750)
O4	1100 <ENTER> <CAPS SHIFT> ↓	INSERT AIR-CONDITIONER WATTS (1100)
P4	15 <ENTER> <CAPS SHIFT> ↓	INSERT ELECTRIC SHAVER WATTS (15)
Q4	600 <ENTER> <CAPS SHIFT> ↓	INSERT HAIRDRYER WATTS (600)
R4	1100 <ENTER> <CAPS SHIFT> ↓	INSERT TOASTER WATTS (1100)
S4	1100 <ENTER> <CAPS SHIFT> ↓	INSERT IRON WATTS (1100)
T4	2 <SYMBOL SHIFT> .5 <ENTER> <CAPS SHIFT> ↓	INSERT ELECTRIC CLOCK WATTS (2.50)
U4	1140 <ENTER> <CAPS SHIFT> ↓	INSERT BROILER WATTS (1140)

STEPS TO CREATE A BLANK ...

continued page 12 ...

• ELECTRIC BILL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
V4	630 <ENTER>	INSERT VACUUM WATTS (630)
V4	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , D5 <ENTER>	GOTO BOX D5
D5	0 <ENTER>	INSERT NUMBER ZERO
D5	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , D5 <SYMBOL SHIFT> , E5 <SYMBOL SHIFT> : V5 <ENTER> <CAPS SHIFT> ->	REPEAT ZEROS DOWN COLUMN 5
D6	<SYMBOL SHIFT> (D4 <SYMBOL SHIFT> * D5 <SYMBOL SHIFT>) <SYMBOL SHIFT> / <SYMBOL SHIFT> (1000 <SYMBOL SHIFT>) <SYMBOL SHIFT> * 30 <ENTER>	INSERT FORMULA (WATTS X HOURS) DIVIDED BY (1000) = KWHRS X 30 = MONTHLY KWHRS

STEPS TO CREATE A BLANK ...

continued page 13 ...

• ELECTRIC BILL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
D6	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , D6 <SYMBOL SHIFT> , E6 <SYMBOL SHIFT> : V6 <ENTER> <CAPS SHIFT> ->	REPEAT FORMULA (WATTS X HOURS) DIVIDED BY (1000) = KWHRS X 30 = MONTHLY KWHRS DOWN COLUMN 6
D7	<SYMBOL SHIFT> # F <SYMBOL SHIFT> , 7 <SYMBOL SHIFT> , G <ENTER>	FORMAT COLUMN 7 TO GENERAL
D7	0 <ENTER>	INSERT NUMBER ZERO
D7	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , D7 <SYMBOL SHIFT> , E7 <SYMBOL SHIFT> : V7 <ENTER> <CAPS SHIFT> ->	REPEAT ZEROS DOWN COLUMN 7
D8	D6 <SYMBOL SHIFT> * D7 <ENTER>	INSERT FORMULA (MONTHLY KILOWATT HOURS) X (RATE) = COST IN DOLLAR FORMAT

STEPS TO CREATE A BLANK ...

continued page 14 ...

● ELECTRIC BILL ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
D8	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , D8 <SYMBOL SHIFT> , E8 <SYMBOL SHIFT> : V8 <ENTER>	REPEAT FORMULA (MONTHLY KILOWATT HOURS) X (RATE) = COST IN DOLLAR FORMAT DOWN COLUMN 8
D8	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , W6 <ENTER>	GOTO BOX W6
W6	<SYMBOL SHIFT> & D6 <SYMBOL SHIFT> : V6 <ENTER>	ADDS MONTHLY KILOWATT HOURS
W6	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , W6 <SYMBOL SHIFT> , W8 <ENTER> <CAPS SHIFT> ->	ADDS ALL COSTS

STEPS TO CREATE A BLANK ...

continued page 15 ...

• ELECTRIC BILL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
W7	<SYMBOL SHIFT> " <SYMBOL SHIFT> < KWH <ENTER> <CAPS SHIFT> -> <CAPS SHIFT> ->	INSERT < KWH
W9	<SYMBOL SHIFT> " <SYMBOL SHIFT> < COST <ENTER>	INSERT < COST
W9	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , D5 <ENTER>	GOTO BOX D5
D5	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

d. ILLUSTRATION OF COMPLETED BLANK ELECTRIC BILL MATRIX

Your blank Electric Bill matrix with estimated appliances' operating watts inserted looks like the following illustration.

• ELECTRIC BILL •

page 1 ...

```
               01        02        03        04

     A                                      OPER
     B      APPL                            WATTS
     C      LIGHTS
     D               LIVING ROOM              200
     E               BEDROOM                  200
     F               BATHROOM                 150
     G               KITCHEN                  150
     H      LARGE    REFRIGERATOR             200
     I      APPL     WASHING MACH             130
     J               DRYER                   3000
     K               RADIO                     20
     L               COLOR TV                 250
     M               BW TV                    150
     N               DISHWASHER               750
     O               AIR COND                1100
     P      SMALL    ELECTRIC SHAV             15
     Q      APPL     HAIR DRYER               600
     R               TOASTER                 1100
     S               IRON                    1100
     T               ELECTRIC CLK             2.5
     U               BROILER                 1140
     V               VACUUM                   630
     W               TOTALS
```

```
                               •   ELECTRIC BILL   •


                 •   ELECTRIC BILL   •

      continued page 2 ...



             05       06       07       08       09

          DAILY  MONTLY            MONTLY
          HOURS     KWH    RATE    COST$

           0.00    0.00       0     0.00
           0.00    0.00       0     0.00
           0.00    0.00       0     0.00
           0.00    0.00       0     0.00
           0.00    0.00       0     0.00
           0.00    0.00       0     0.00
           0.00    0.00       0     0.00
           0.00    0.00       0     0.00
           0.00    0.00       0     0.00
           0.00    0.00       0     0.00
           0.00    0.00       0     0.00
           0.00    0.00       0     0.00
           0.00    0.00       0     0.00
           0.00    0.00       0     0.00
           0.00    0.00       0     0.00
           0.00    0.00       0     0.00
           0.00    0.00       0     0.00
           0.00    0.00       0     0.00
           0.00    0.00       0     0.00
                   0.00    <KWH     0.00<COST
```

e. EXAMPLE OF HOW TO USE THE BLANK ELECTRIC BILL MATRIX

In order to use the blank matrix to determine your Electric Bill, let us assume the season is winter and your local Electric Company's rate is 14.4¢ per KHW.

Let us further assume that you only use some of the appliances in the blank Electric Bill matrix as follows:

APPLIANCE	DAILY HOURS USED
LIVING ROOM	14 hours
BEDROOM	8 hours
BATHROOM	4 hours
KITCHEN	4 hours
REFRIGERATOR (Self Defrost)	18 hours
RADIO	4 hours
COLOR TV	4 hours
HAIR DRYER	.25 hour
IRON	.25 hour
ELECTRIC CLOCK	24 hours
BROILER	1 hour
VACUUM	.15 hour

Inputting the hours used for each appliance and the rate per kilowatt hours enables the Electric Bill blank matrix to automatically compute your monthly Electric Bill.

f. ACTUAL STEPS FOR INPUTTING DATA INTO THE BLANK ELECTRIC BILL MATRIX

Type the following steps for inputting average hours of appliances used and rates into the blank Electric Bill matrix as follows.

STEPS FOR INPUTTING DATA INTO THE BLANK ... page 1 ...

● ELECTRIC BILL ●

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
D5	14 <ENTER>	INSERT DAILY USE LIVING
	<CAPS SHIFT> ↓	ROOM LIGHTS (14 HOURS)
E5	8 <ENTER>	INSERT DAILY USE BED-
	<CAPS SHIFT> ↓	ROOM LIGHTS (8 HOURS)
F5	4 <ENTER>	INSERT DAILY USE BATH
	<CAPS SHIFT> ↓	ROOM LIGHTS (4 HOURS)
G5	4 <ENTER>	INSERT DAILY USE KITCHEN
	<CAPS SHIFT> ↓	LIGHTS (4 HOURS)
H5	18 <ENTER>	INSERT DAILY REFRIGATOR
	<CAPS SHIFT> ↓	CYCLE (18 HOURS)
	<CAPS SHIFT> ↓	
	<CAPS SHIFT> ↓	
K5	4 <ENTER>	INSERT DAILY RADIO
	<CAPS SHIFT> ↓	USE (4 HOURS)
L5	4 <ENTER>	INSERT DAILY COLOR
L5	<SYMBOL SHIFT> # G	GOTO BOX Q5
	<SYMBOL SHIFT> , Q5	
	<ENTER>	

STEPS FOR INPUTTING DATA INTO THE BLANK ... continued page 2 ...

• ELECTRIC BILL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
Q5	<SYMBOL SHIFT> .25 <ENTER> <CAPS SHIFT> ↓ <CAPS SHIFT> ↓	INSERT DAILY USE HAIR DRYER (.25 HOUR)
S5	<SYMBOL SHIFT> .25 <ENTER> <CAPS SHIFT> ↓	INSERT DAILY USE IRON (.25 HOUR)
T5	24 <ENTER> <CAPS SHIFT> ↓	INSERT DAILY USE ELECTRIC CLOCK (24 HOURS)
U5	1 <ENTER> <CAPS SHIFT> ↓	INSERT DAILY USE ELECTRIC BROILER (1 HOUR)
V5	<SYMBOL SHIFT> .15 <ENTER>	INSERT DAILY USE VACUUM (.15 HOUR)

STEPS FOR INPUTTING DATA INTO THE BLANK ...

continued page 3 ...

• ELECTRIC BILL •

BOX LOCATION	TYPE THE FOLLOWING	EXPLANATION
V5	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , D7 <ENTER>	GOTO BOX D7
D7	<SYMBOL SHIFT> .144 <ENTER>	INSERT RATE KWHRS (14.4 CENTS)
D7	<SYMBOL SHIFT> # R <SYMBOL SHIFT> , D7 <SYMBOL SHIFT> , E7 <SYMBOL SHIFT> : V7 <ENTER>	REPEAT RATE FOR ALL APPLIANCES
D7	<SYMBOL SHIFT> # G <SYMBOL SHIFT> , A1 <ENTER>	GOTO BOX A1
A1	<SYMBOL SHIFT> # C <ENTER>	CALCULATE

g. ILLUSTRATION OF COMPLETED ELECTRIC BILL MATRIX

This is what your completed Electric Bill matrix should look like.

● ELECTRIC BILL ●

```
        ●  ELECTRIC BILL  ●

page 1 ...



              01        02        03        04

   A                                      OPER
   B       APPL                           WATTS
   C       LIGHTS
   D                LIVING ROOM             200
   E                BEDROOM                 200
   F                BATHROOM                150
   G                KITCHEN                 150
   H       LARGE    REFRIGERATOR            200
   I       APPL     WASHING MACH            130
   J                DRYER                  3000
   K                RADIO                    20
   L                COLOR TV                250
   M                BW TV                   150
   N                DISHWASHER              750
   O                AIR COND               1100
   P       SMALL    ELECTRIC SHAV            15
   Q       APPL     HAIR DRYER              600
   R                TOASTER                1100
   S                IRON                   1100
   T                ELECTRIC CLK            2.5
   U                BROILER                1140
   V                VACUUM                  630
   W                TOTALS
```

• ELECTRIC BILL •

continued page 2 ...

```
   05       06       07       08       09

DAILY  MONTLY          MONTLY
HOURS     KWH    RATE  COST$

14.00   84.00    .144   12.09
 8.00   48.00    .144    6.91
 4.00   18.00    .144    2.59
 4.00   18.00    .144    2.59
18.00  108.00    .144   15.55
 0.00    0.00    .144    0.00
 0.00    0.00    .144    0.00
 4.00    2.40    .144    0.34
 4.00   30.00    .144    4.32
 0.00    0.00    .144    0.00
 0.00    0.00    .144    0.00
 0.00    0.00    .144    0.00
 0.00    0.00    .144    0.00
 0.25    4.50    .144    0.64
 0.00    0.00    .144    0.00
 0.25    8.25    .144    1.18
24.00    1.80    .144    0.25
 1.00   34.20    .144    4.92
 0.15    2.84    .144    0.40
       359.99    <KWH   51.78<COST
```

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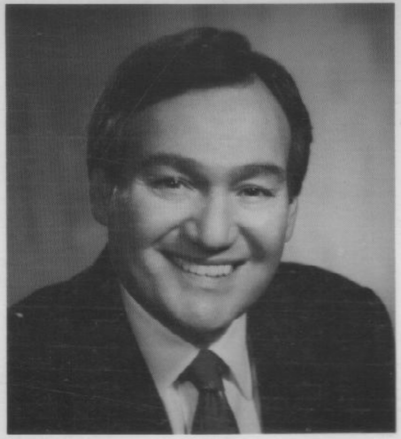

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About the Book

This is an invaluable guide showing how to create spreadsheets using VuCalc® software on the inexpensive and popular Timex/Sinclair 2000® or Sinclair ZX Spectrum® microcomputers. The book provides hands-on experience in creating low cost electronic worksheet matrixes for home, business, school, or government. *An Introduction to Vu-Calc™ Spreadsheeting for the Timex/Sinclair 2000® and the Sinclair Spectrum®* is designed for readers who know what they want a microcomputer to do, but know very little about programming a microcomputer. It shows readers how to use this important tool (spreadsheet matrixing) to solve practical problems quickly and easily, and it provides experience in using some financial planning packages as well. The book will give readers the knowledge and ability to use an electronic worksheet to create matrixes for their particular needs and specifications, including preparation of a home financial budget.

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